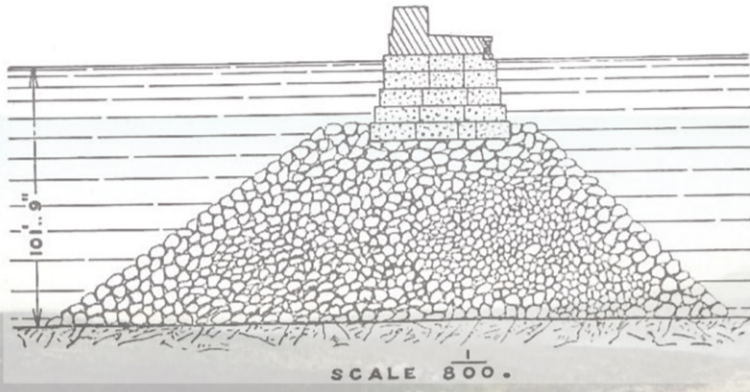


PERCEIVING LANDSCAPE

DESIGNING FOR THE
CONTEMPLATION OF
MATERIAL CULTURE
THROUGH TIME



JWN



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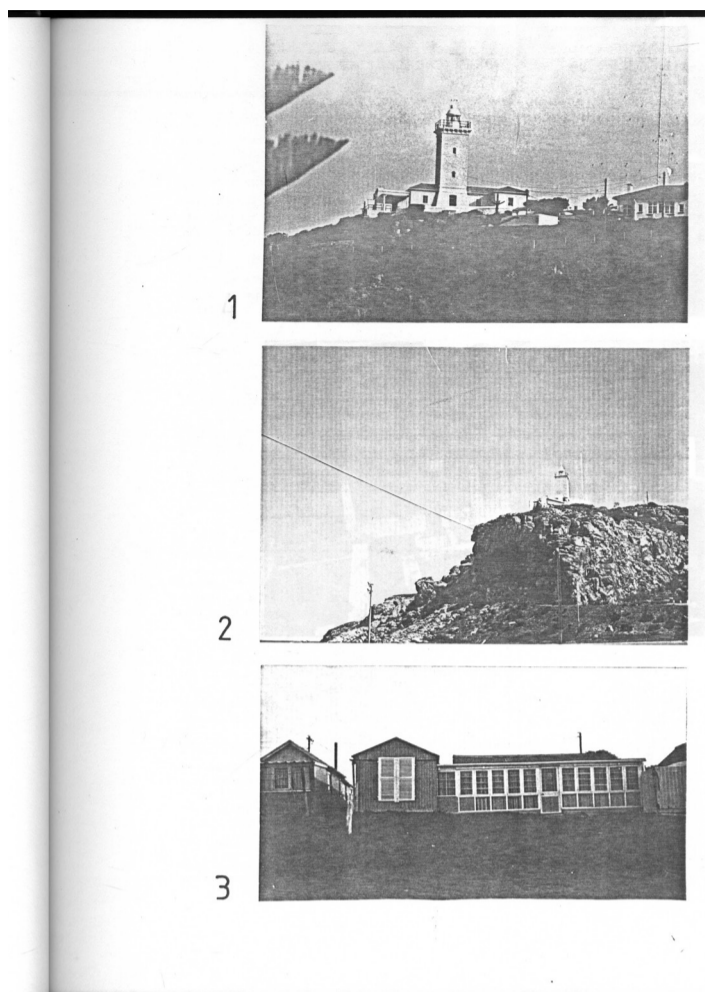
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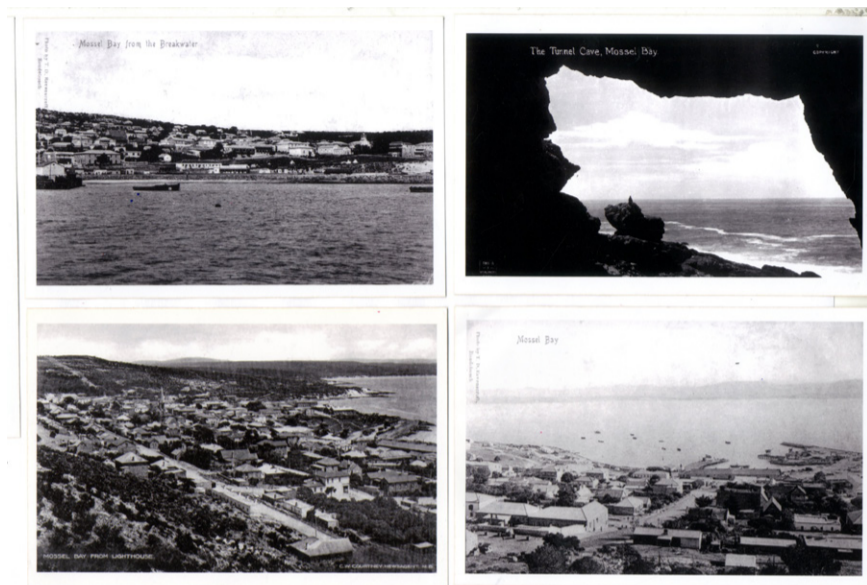
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/ EXECUTIVE SUMMARY



From 'An Annotated Survey of Buildings of Architectural, Historical and Contextual Importance in the Central Area of Mossel Bay' (Basset, 1985).



Postcards from the Mossel Bay central area, circa 1950s.

Near the Point at Mossel Bay on the Cape south coast is a series of sea cliff caves that contain the earliest known evidence of modern human material culture: a record of complex tool use, collection of marine resources for food and use of natural pigments for symbolising practices. This is revealed by the archaeological excavation of 'midden' deposits – piles of refuse usually situated in the back of cave dwellings left by their ancient occupants.

This evidence reveals that modern humans have lived on the Cape south coast for at least 167 000 years, a time spanning global glacial and interglacial periods with associated sea level retreat and rise.

During glacial phases of sea level retreat – the norm during much of human evolution - a broad continental shelf was exposed on the Cape south coast, creating a coastal plain up to 90km from the present shoreline. This now-submerged landscape, uniquely temperate, well-watered and productive during harsh glacial phases, provided sanctuary for human and other life. It is thought that this landscape was critical in establishing the course of modern human cognition.

A geological study of this coastal landscape reveals its sedimentary nature, the result of repeated processes of erosion and deposition. Notions of erosion and deposition are echoed by human interaction with materials through time. Humans extract material resources from the landscape, transform them, and then deposit them, changing the landscape.

The urban landscape of modern Mossel Bay consists of a palimpsest of material traces deposited through time, forming an aggregate of layers of human history.

As we enter the uncertain future of climate change and sea level rise, we must be conscious of what we deposit on the landscape. This forces a re-evaluation of our material use as designers and as a society.

These considerations animated the choice of the Point in Mossel Bay as the location of a landscape design intervention – a space at the intersection of sea, shoreline, cliff, quarry, cave and plain, that has developed haphazardly in the modern era.

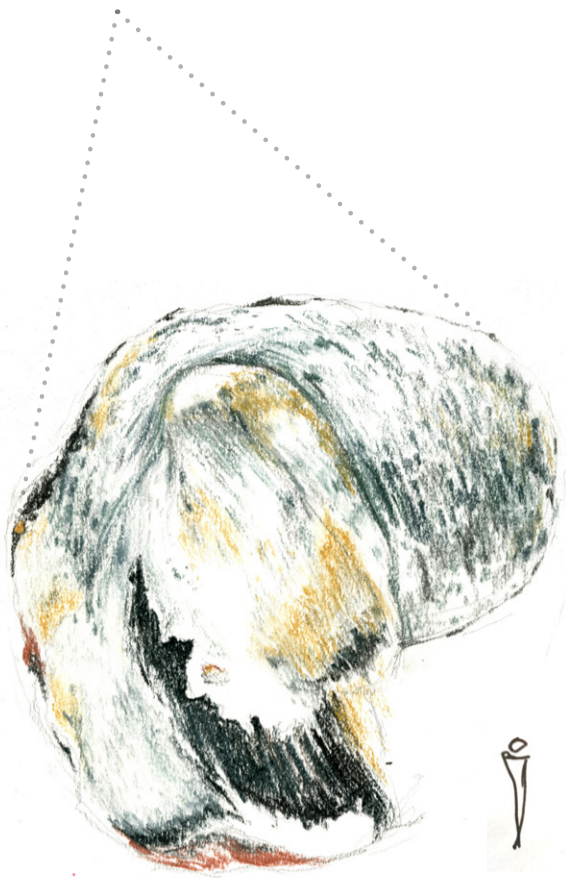
The design, which envisions a modern 'midden,' a mound of demolition waste deposited over the existing site to form the new public landscape, impels a contemplation of the layers of material that we leave behind over time, and how this defines us to future generations.

A design language derived from the language of geology (erosion, deposition) and archaeology (trace, excavation) informs the design and its experience.

The fill material for the midden/mound is from two sources: the zones of settlement that will be forced to retreat from the shoreline due to sea level rise anticipated in the next 50 years, and the existing materials on site that are repurposed in the design of the new landscape.

The design allows people to perceive and reflect on the layers of materiality that make up the human landscape, and on the possibilities of the thoughtful use of materials that will give way to the landscapes of the future.

/ STUDY ABSTRACT



The project deals with change in the landscape over different time scales, ranging from the immensity of geological time to the comparatively minute period of human occupation on earth.

The design study investigates the geology of the cape southern coastal plain landscape to uncover the processes that shape its geomorphology through time.

An analogue is drawn between the geological processes of erosion and deposition and the human processes of resource extraction and development that transform the landscape.

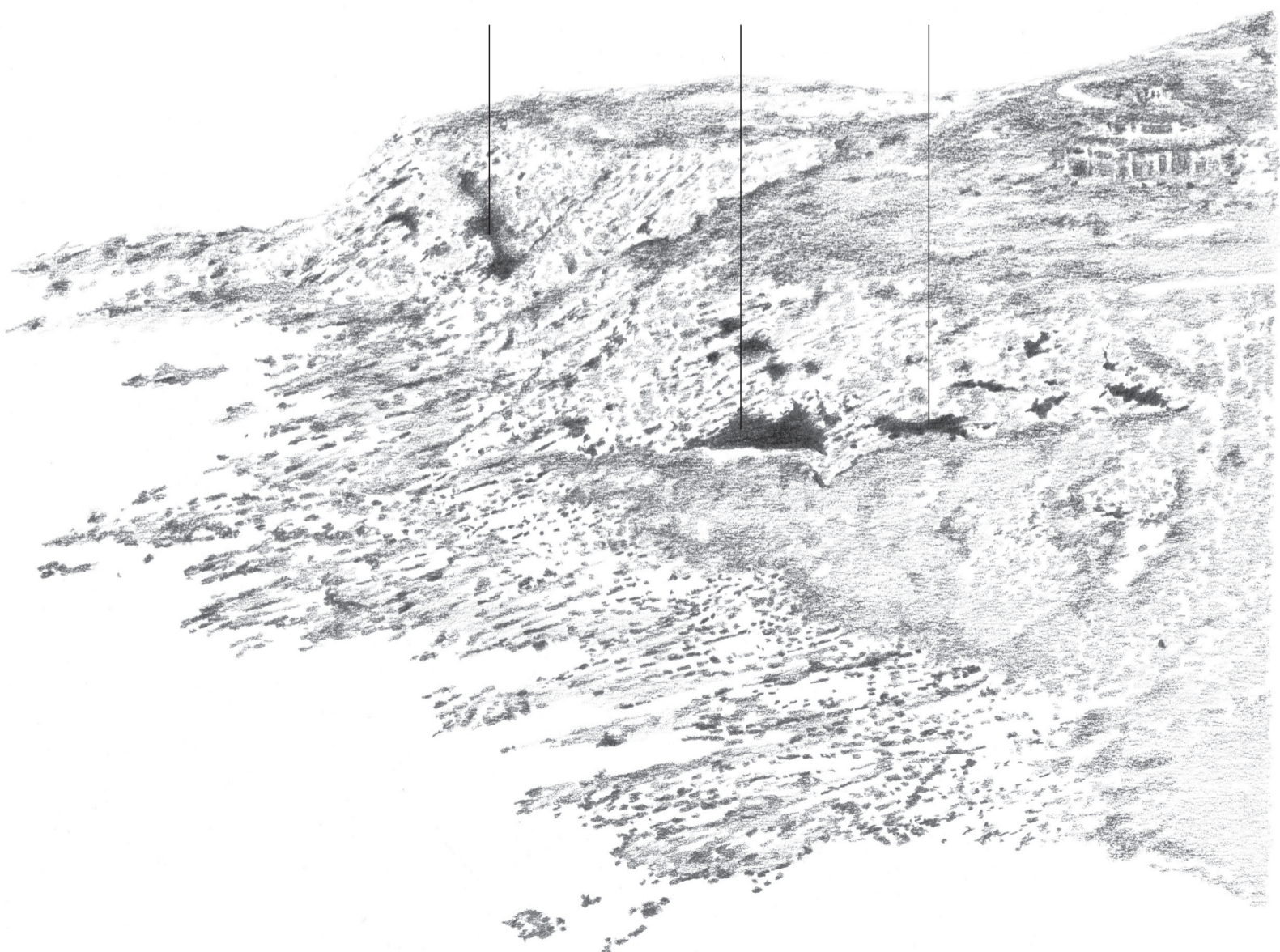
By abstracting the processes of erosion and deposition as they occur on this landscape, a set of form-making principles are derived for the design.



PP13B

PP5-6
Lower

PP5-6
Upper

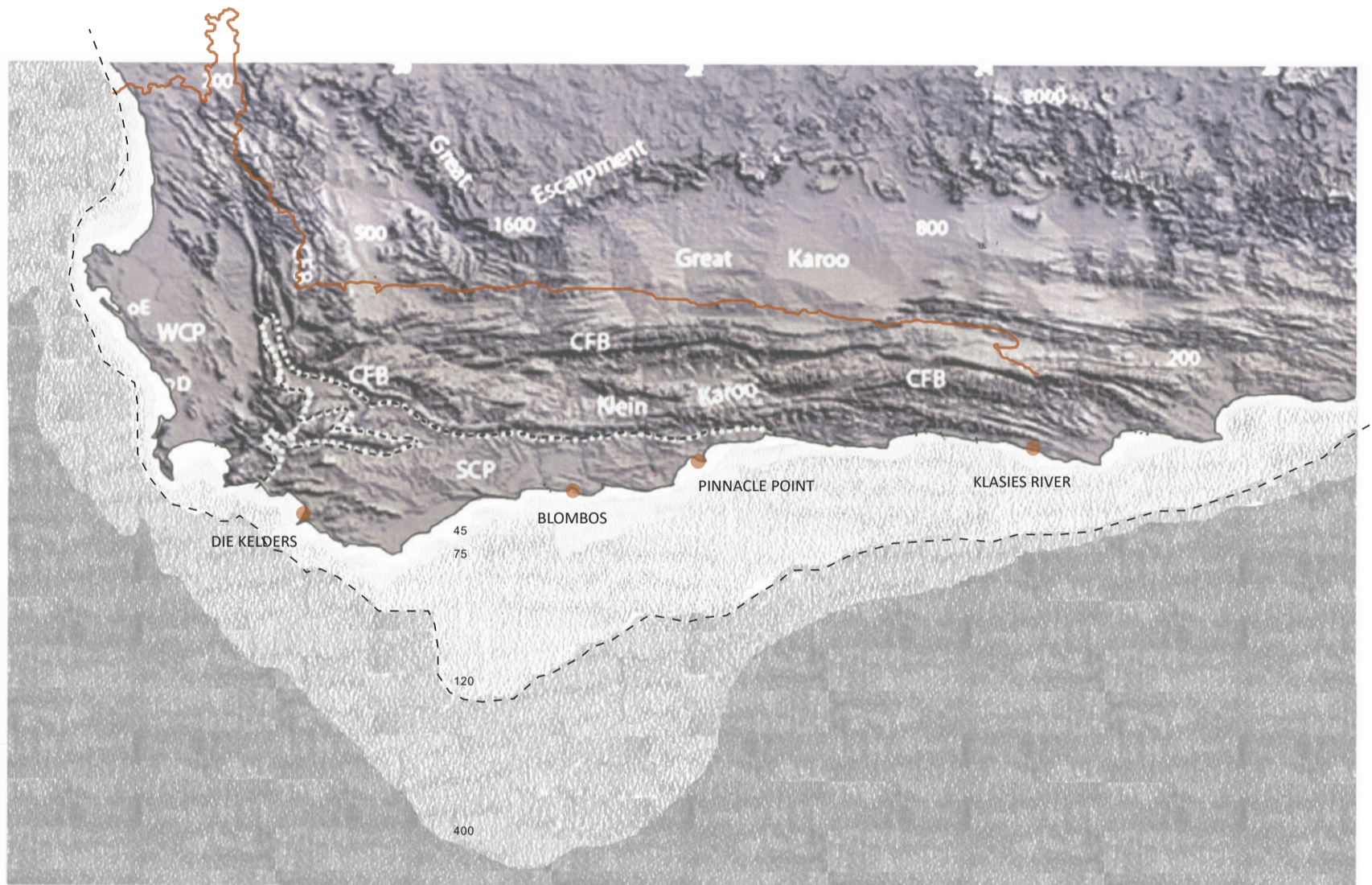


Shifting shelves

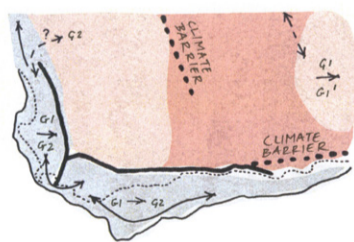
During glacial phases of sea level retreat – the norm during much of human evolution - a broad continental shelf was exposed on the Cape south coast, creating a coastal plain up to 90km from the present shoreline. This now-submerged landscape, uniquely temperate, well-watered and pro-

ductive during harsh glacial phases, provided sanctuary for human and other life. Studies from neocoastal caves and other coastal archeological deposits suggest that the currently submerged terrestrial ecosystem of the Agulhas Bank may have played a significant role in human evolution in South Africa during the Pleistocene,

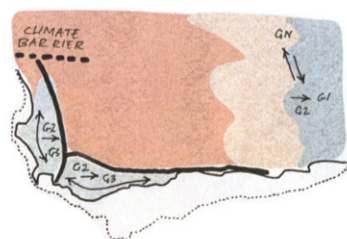
offering terrestrial as well as marine resources (Marean et. al 2007). In addition, it may periodically have served as a geographically isolated region ensuring the evolutionary divergence of groups living there (Compton 2011).



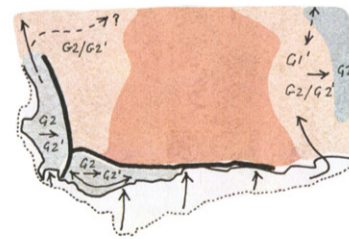
THE SHIFTING CONTINENTAL PLAIN



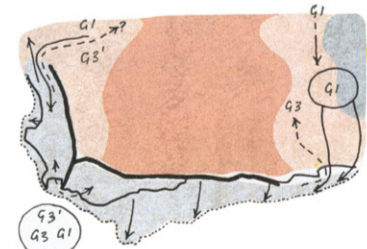
A - GLACIAL MAXIMA



B - GLACIAL TERMINATION



C - INTERGLACIAL HIGHSTANDS



D - INTERGLACIAL TO GLACIAL

Rhythmic change of the Quaternary glacial inter-glacial cycle, adapted from Compton, 2011.

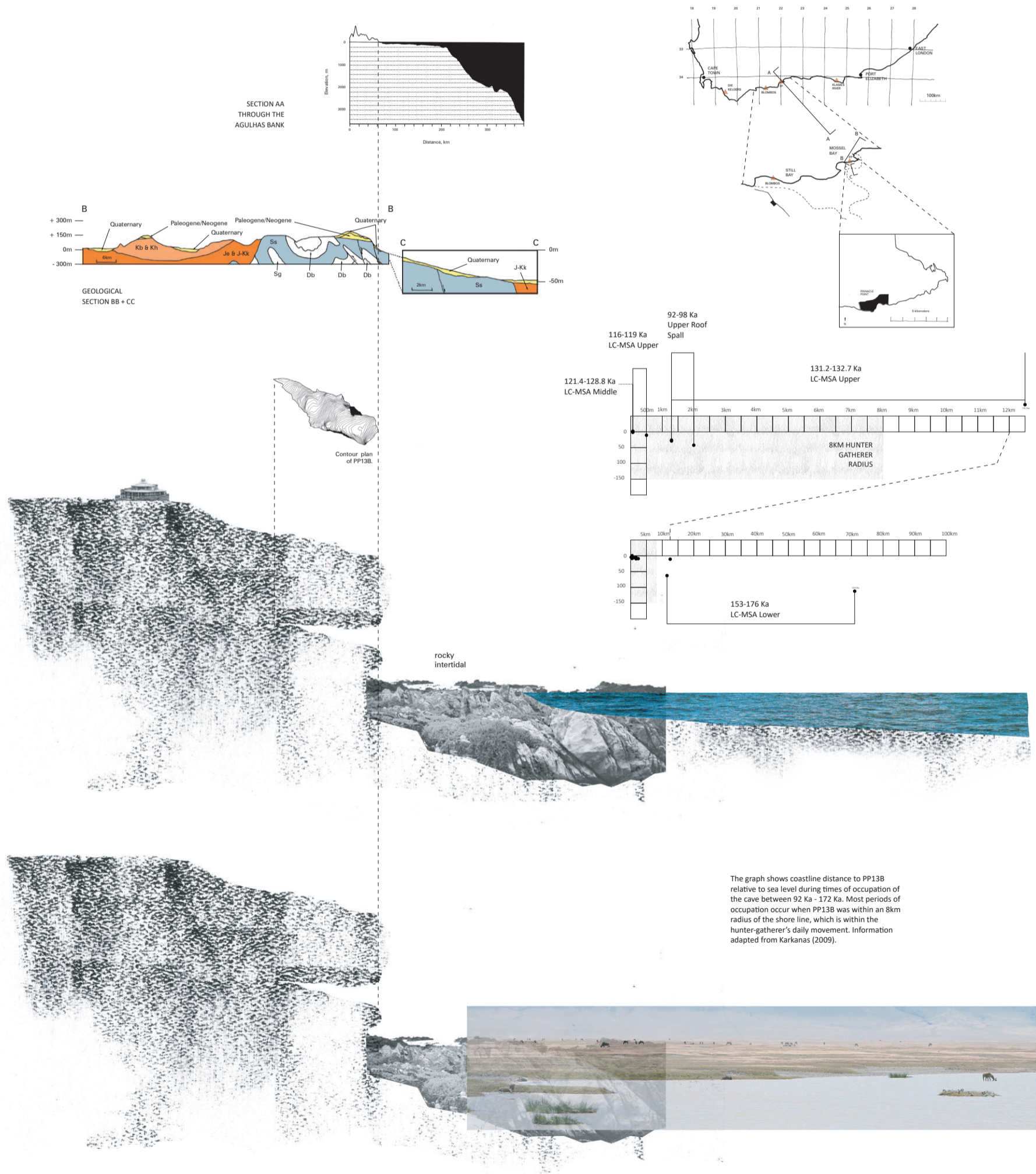
Pinnacle Point

At Pinnacle Point, near Mossel Bay on the Cape south coast, is a series of sea cliff caves that contain the earliest known evidence of modern human material culture: a record of complex tool production, marine shellfish exploitation and use and modification of pigments for symbolising practices (Marean 2011). This is revealed by the archaeological excavation of 'midden' deposits – piles of refuse usually situated in the back of cave dwellings left by their ancient occupants.

Evidence from PP13B, one of the caves in the Pinnacle Point complex, reveals that modern humans have lived on the Cape south coast for at least 167 000 years, a time spanning glob-

al glacial and interglacial changes in sea level and climate. Occupants of the cave site - sometimes within a single generation - witnessed vast changes in the surrounding landscape as the shallow coastal plain expanded and contracted with changes in sea level.

Periods of occupation in PP13B mostly correspond to periods when the coastline was within 8km of the cave - the established daily movement radius of hunter-gatherer societies. The most recent occupation of the cave was between 92 and 98 thousand years ago (Upper Roof Spall), when the coastline was within 1-2km of the cave.



The graph shows coastline distance to PP13B relative to sea level during times of occupation of the cave between 92 Ka - 172 Ka. Most periods of occupation occur when PP13B was within an 8km radius of the shore line, which is within the hunter-gatherer's daily movement. Information adapted from Karkanas (2009).

The 'process analog' as a method for deriving deep form.

"Dynamic complexity is the reality of the landscape," writes John T. Lyle in his essay 'Can Floating Seeds Make Deep Forms?' And yet, he argues, the form of this complexity – an outward manifestation of the myriad interactions between a site's structural, functional and locational order as they exist in a particular moment - is impossible to fully comprehend on a human scale: "natural order is not designed for human perception and understanding" (Lyle, 1991, 41).

In making sense of the intricacies of natural systems, we must therefore turn to methods of abstraction in some or other form. In the history of landscape design, this has long followed the tradition of reductionism, a "breaking of the whole into component parts," which often ends in merely pictorial representation (Lyle, 1991, 41). This is what Lyle means by "Shallow Form," which he defines as "lacking the inner substance that the embodiment of nature's less visible but more essential processes can impart" (Lyle, 1991, 38).

Shallow form is problematic to Lyle for two main reasons. One, it results in the disorder and instability associated with simplicity in an ecological system, undermining the capacity for resilience (Lyle, 1991, 39). And two, it negates the potential of design to make meaningful connections between nature and human culture. (Lyle, 1991, 37).

Lyle thinks that the practice of landscape architecture should fundamentally be concerned with joining human perception and ecosystematic order through design. This is what he calls 'Deep Form.' To create Deep Form we need to represent process over picture, in an attempt to "redefine landscape as the visible manifestation of an ecosystem." (Lyle, 1991, 39).

As a way of achieving this, he proposes what I am terming the 'process analog.' In the process analog, the design "does not mimic [a feature of the natural landscape] but recalls it in process in human terms related to the human environment." (Lyle, 1991, 43).

Miniaturizing process in this way allows for merging the scales of human perception and larger, more enigmatic natural systems to form a design aesthetic of internal ecological order – what Lyle calls the 'human ecosystem' (Lyle, 1991, 43). This aesthetic, while maintaining ecological order, also becomes a "vehicle for connecting with, and caring for, the world around us (Meyer, 2008, 18).

In the thesis project, which deals with the existential relationship between the human species and a particular coastal landscape on the Cape South Coast, the process of landscape change through deep time is of central relevance. Geological processes reveal the underlying ecosystematic order at play on the site, as well as the mutable nature of landscape as a setting for human life. The process analogues I am exploring to derive the design are thus abstracted from geology (processes of erosion, displacement, and deposition), and archaeology (plotting, excavating, unearthing).

The geological processes become a metaphor for the transformation of material in the landscape, whether urban or geomorphic. As such, design is seen as a self-conscious deposition onto the landscape – the creation of a new layer of form and meaning which sits on top of and disrupts (erodes) that which came before. This is the palimpsest concept, which speaks also to the archaeological process – the careful sorting and analysis of historical strata to derive some understanding of human nature through time.

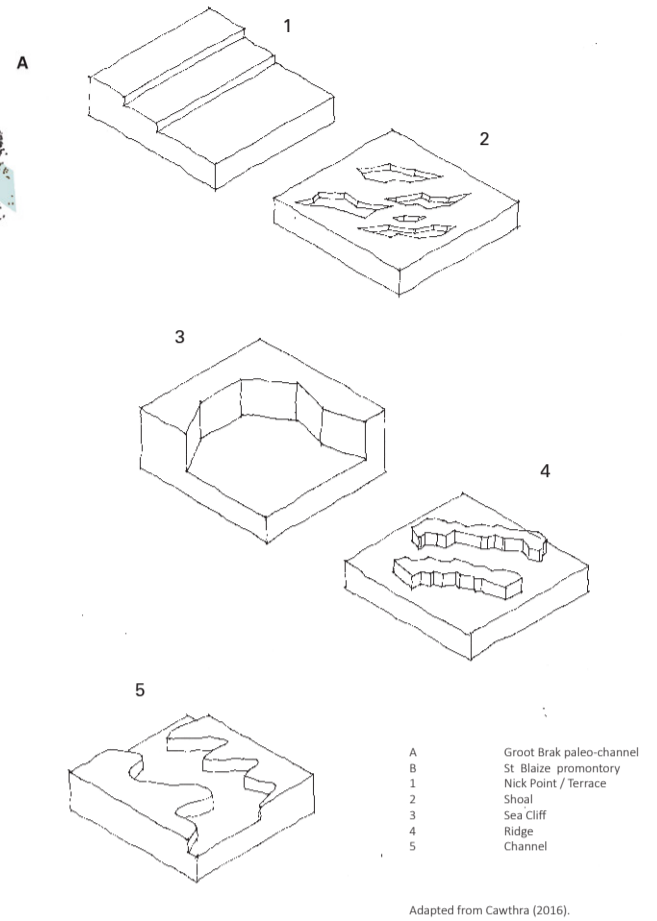
Submerged Landscape

The now extinct ecosystem of the Paleo-Agulhas plain is of increasing interest to scientists who want to understand more about the human origins story, and a multi-disciplinary project to reconstruct the "paleoscape" is underway. Cawthra (2016) has used geophysical techniques to map the geological features of the sea floor offshore of Mossel Bay. These studies found terrestrial features that are evidence of former land surfaces. They show that this submerged landscape was a well-drained plain of fertile soil and nutritious grasses supporting large grazing herds - a very different environment to today.

An entry point into the design study was an examination of the mapped geomorphological features of the sea floor as potential form-making elements.



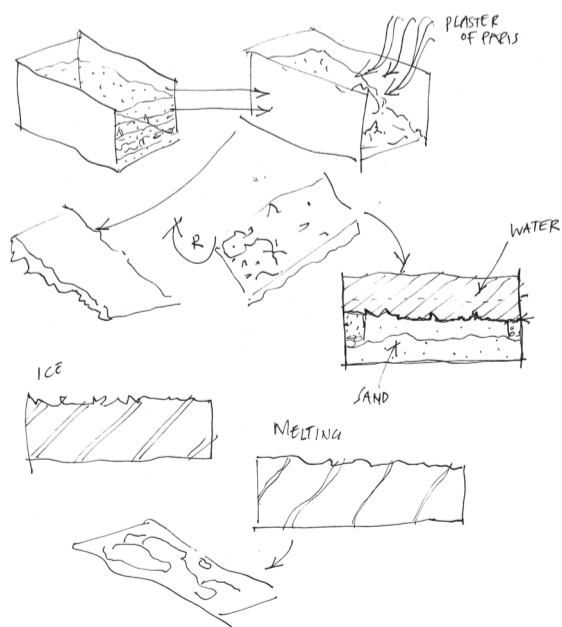
TERRESTRIAL FEATURES OF THE SEAFLOOR OFF MOSSEL BAY



CONCEPTUAL MODEL IN FROZEN PHASE

Abstract Archaeology

The study takes inspiration from Hargreaves and Associates's concept of 'Abstract Archaeology,' a process in which clay and sand modelling are used to abstract cultural and natural aspects of site. The form created by erosion of sedimentary geology is explored in a conceptual model by stacking layers of sand (the 'soft') and broken shell material (the 'hard') intermixed with rounded pebbles (hard, products of abrasive erosion). Sea water was then swashed into the box to let it erode the layers on one side. A cast was made of the relief with plaster of paris and allowed to harden. This cast was then 'excavated' by loosening material from around it and rinsed under running water. The model was placed in a foil water bath and frozen to create an ice cast (a reference to the glacial), which was then photographed through various stages of melting.



HARD / SOFT

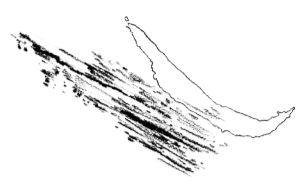
Differences in rock composition define the morphology of the south coast. Softer rocks that are more easily eroded form bays while harder rocks that are resistant to erosion form headlands.

Archaeology, too, is pervaded by notions of soft and hard. Hard objects (tool artefacts, fossils) are usually what remains and are studied in the archaeological record. These are excavated out of the soft matrix of earth in which they are set.

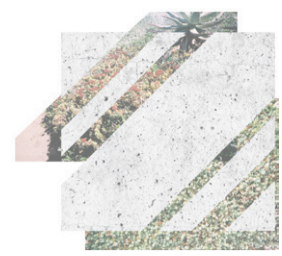
These notions can be harnessed in the design through the interplay between hard and soft landscaping.



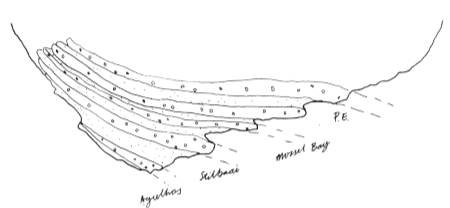
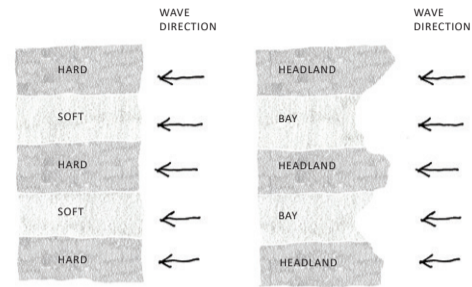
HARD TOOLS / SOFT PIGMENTS



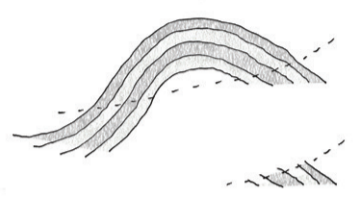
HARD ROCKY SHORES / SOFT SANDY SHORES



HARD LANDSCAPING / SOFT LANDSCAPING



Hard and soft lithologies are responsible for the headland-bay geomorphology of the Cape South Coast.

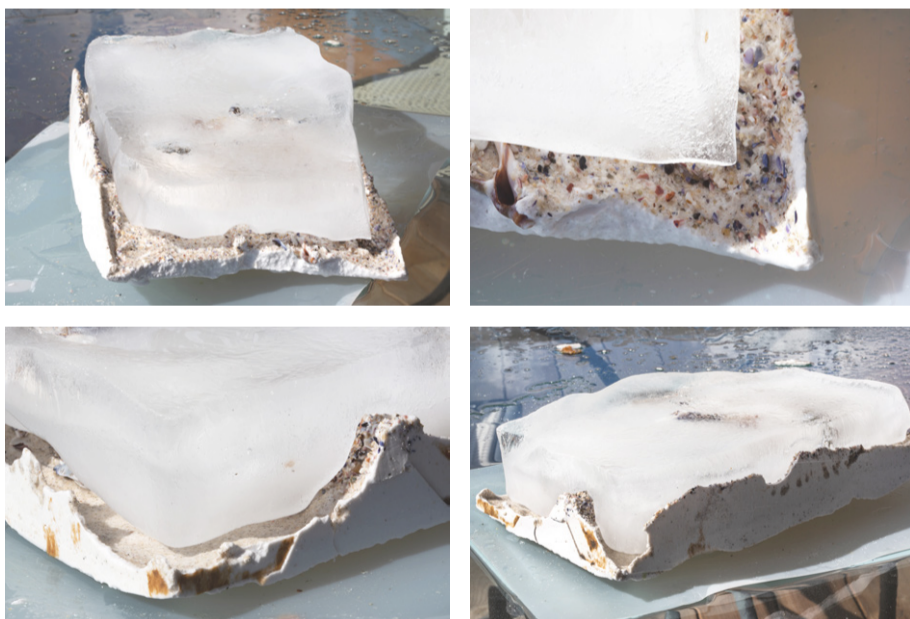


The dramatic geology of the Poort tidal area is the result of a planed sedimentary fold of the Cape Fold Belt.

CONCEAL / REVEAL

The frozen cast obscured the plaster of paris model, changing its visual form. As the cast melted, different forms were revealed. This is likened to the concealing and revealing of the coastal plain through sea level fluctuation over time.

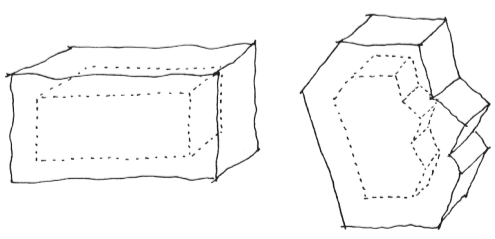
Notions of concealing and revealing can be carried forward in the design to sensitize people to change as a major force in the landscape.



OFFSET



Sharp lines become smooth and rounded.



The process of melting, like some forms of erosion, is a process of continuous offsetting of a preceding form state. As the form is eroded from the outside a memory of the past form is preserved and transformed.



/ DISSERTATION ABSTRACT

Notions of erosion and deposition are echoed by human interaction with materials through time. Humans extract material resources from the landscape, transform them, and then deposit them, changing the landscape.

The urban landscape of modern Mossel Bay consists of a palimpsest of material traces deposited through time, forming an aggregate of layers of human history.

As we enter the uncertain future of climate change and sea level rise, we must be conscious of what we deposit on the landscape. This forces a re-evaluation of our material use as designers and as a society.

These considerations animated the choice of the Point in Mossel Bay as the location of a landscape design intervention – a space at the intersection of sea, shoreline, cliff, quarry, cave and plain, that has developed haphazardly in the modern era.

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/ DISSERTATION DOCUMENT

MOSSEL BAY

Mossel Bay today exemplifies a contemporary coastal settlement in the industrial era: development right up to the shoreline, seasonal inundation by holidaymakers, polluted coastal waters, and over-fishing. In addition to its character as a port town, the discovery of natural gas in 1950s has added a layer of heavy industry to the landscape.

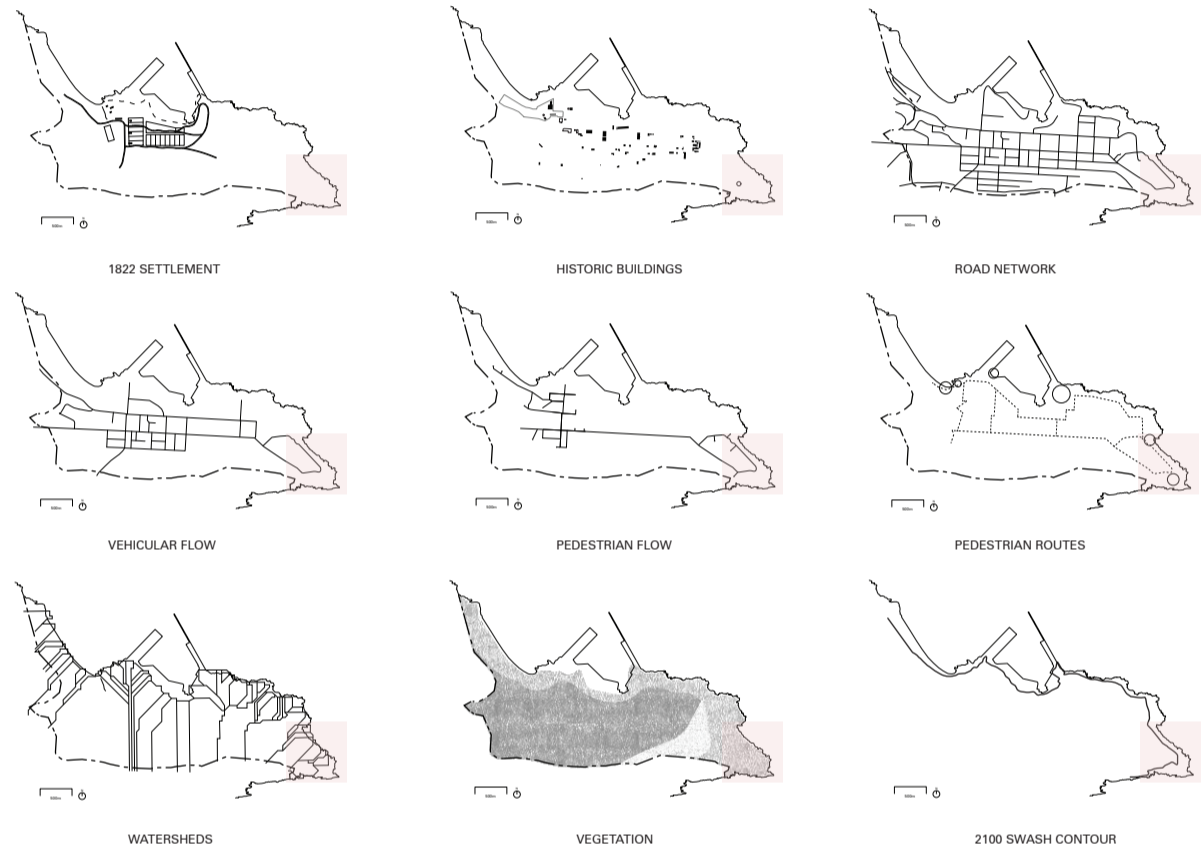
These modern layers, set in contrast to the rich archaeological past of the region, define the genus loci of the site.



HISTORIC CENTRE

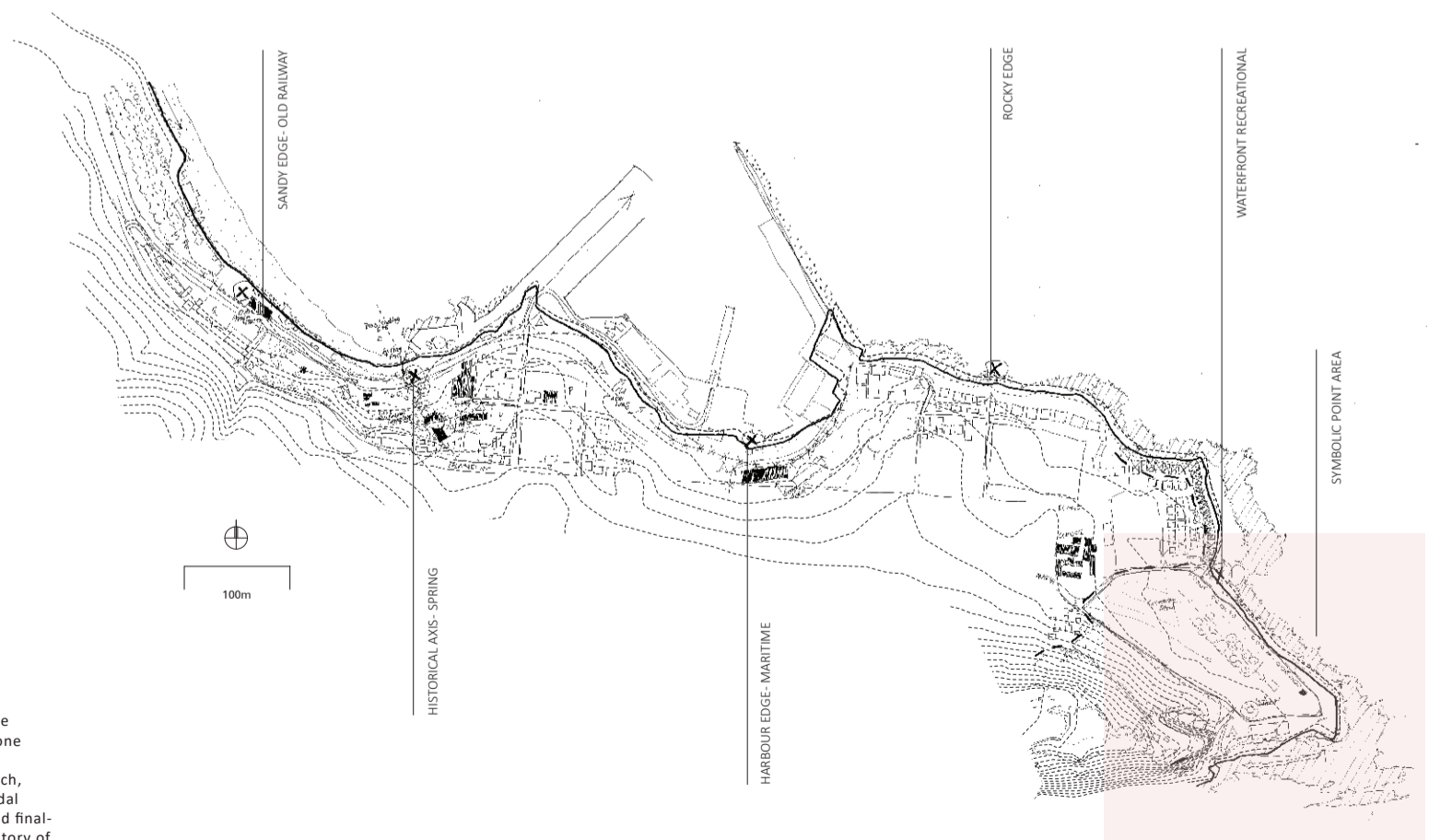
The urban landscape of modern Mossel Bay consists of a palimpsest of material traces deposited through time. These are displayed in museum format and are also discernable in the everyday landscape. Mossel Bay is known as the site of the first meeting between Europeans and the indigenous Khoi people of Southern Africa when Portuguese explorer Bartholomew Dias landed his ship in the bay in 1488, in pursuit of fresh water.

The layout of colonial buildings of later Dutch settlement form the urban structure of the historic centre, a draw for historical tourism, with which the town has become associated.



THE POINT

Following a pedestrian route along the coastline from the Dias landing site, one encounters various instances of human-coastal interaction: sandy beach, industrial harbour edge, rocky intertidal zone, commercial waterfront area, and finally the Point, a dramatic rocky promontory of Table Mountain quartzite.



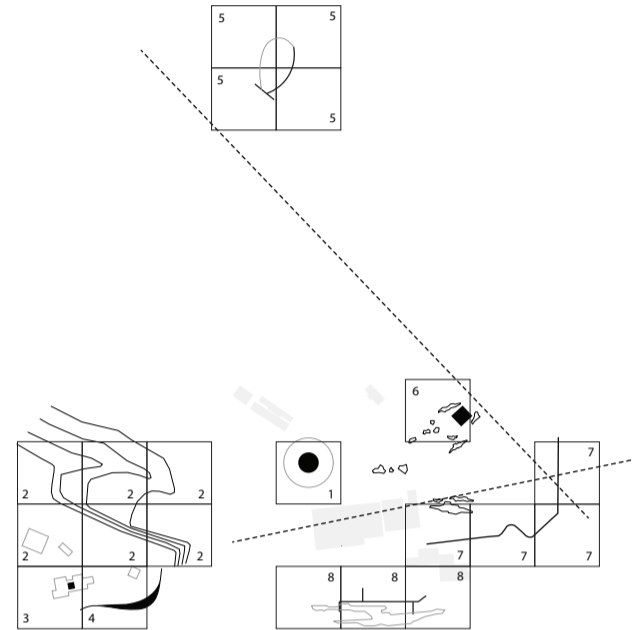


The Point, Mossel Bay ESRI satellite image, 2019.

ARTEFACT MAPPING

Embedded in the Point landscape is a concentrated collection of points of cultural significance - the "artefacts" of the site. Prominent among these is the Cape St Blaize cave - the gateway to the archaeological history of the area. From the cave, the Cape St Blaize trail leads along the coastal cliffs to the Pinnacle Point cave complex.

The cave stands in visual proximity to many cultural landmarks - the 1864 lighthouse on the bluff directly above it, the Point quarry site, the source of stone for the town's original buildings and breakwater, the World War memorial and circular outer stonewalling (also quarried from the site), and the dramatic natural tidal pool, Die Poort, with remnants of the 100-year old 'Bathing and Tea Pavilion' beneath the modern Point hotel and aquarium.



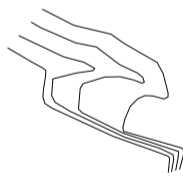
1 WORLD WAR 1 MEMORIAL



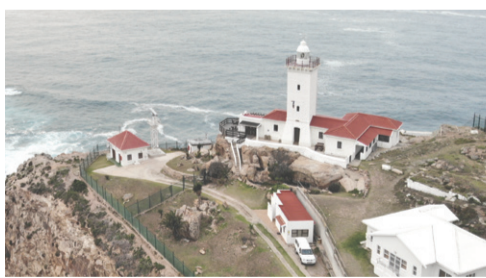
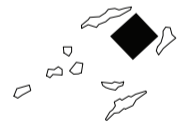
5 POINT TIDAL POOL



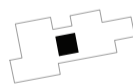
2 POINT QUARRY SITE



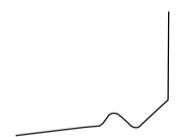
6 HISTORIC SANDSTONE KIOSK



3 LIGHTHOUSE COMPLEX



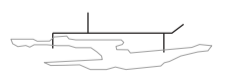
7 THE POINT

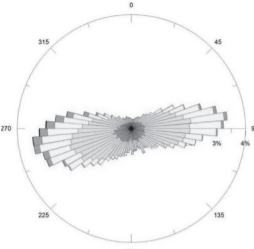
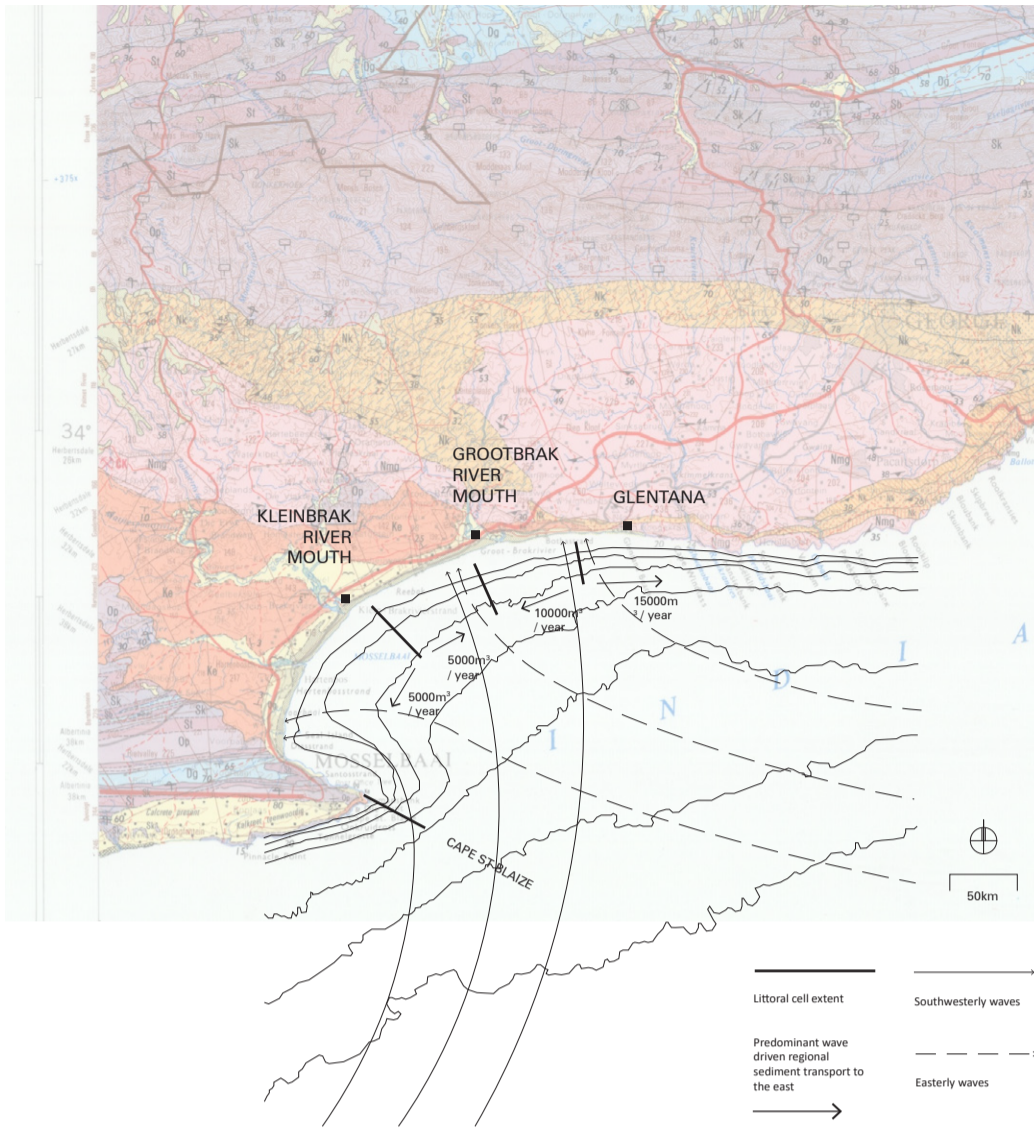


4 ST BLAIZE CAVE

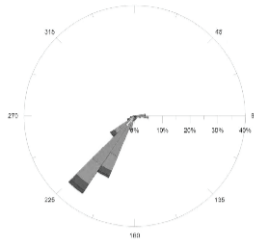


8 'DIE POORT' TIDAL POOL





WIND ROSE

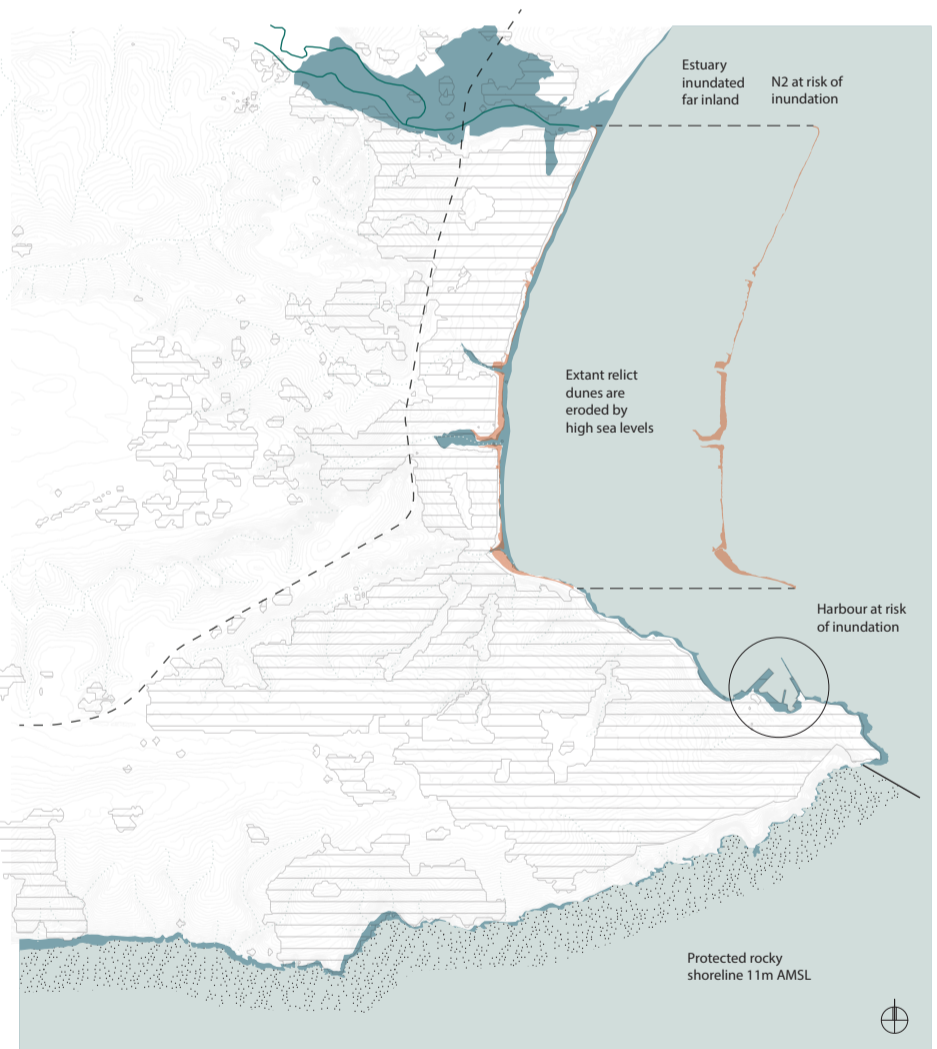
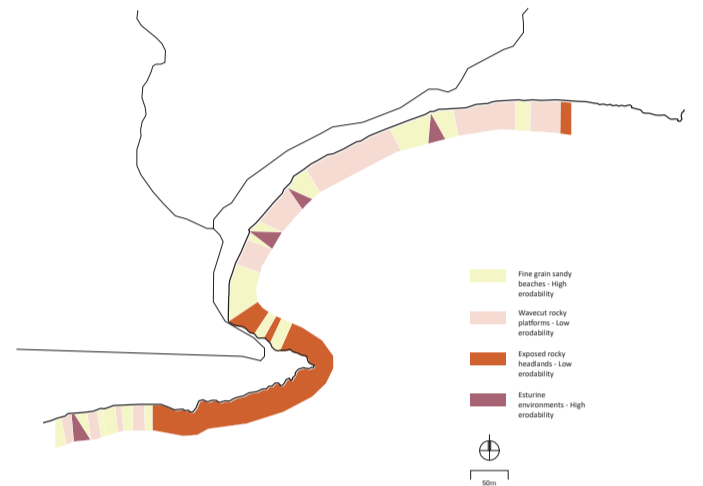


WAVE ROSE

COASTAL VULNERABILITY

Settlement built close to the dynamic shoreline of present Mossel Bay is at risk. Global climate change exacerbated by anthropogenic activity will inevitably result in coastal inundation and damage to property from increased storm activity. Sandy and low lying areas will be most affected. At the same time, overexploitation of marine resources hastens a loss of biodiversity in the vital coastal zone.

Reflecting on the role played by humans in this environmental crisis, through overexploitation of resources, impels a re-evaluation of our interaction with materials in the future.



Vulnerable sandy shoreline

2100 RETREAT SCENARIO

Coastal systems, unmediated by human settlement, move landward and seaward with natural cycles of flux and change. The imposition of human settlement in this dynamic zone creates a hard edge that disrupts these processes of migration.

In certain areas, where people have settled on tops of foredunes or in estuarine environments, these systems, which would otherwise move landwards, will inundate.

In the near future, these built areas will have to retreat from the shoreline and material will be liberated from the demolished buildings. The map shows the likely zone of inundation by 2100.

The design departs from the notion of re-using this eroded material as an anthropogenic deposit in the new public landscape at the Point. This functions as a symbolic reminder of past material culture, and refers to the process of flux in natural systems, to which human construction is also subject.



ESTUARY INTRUSION



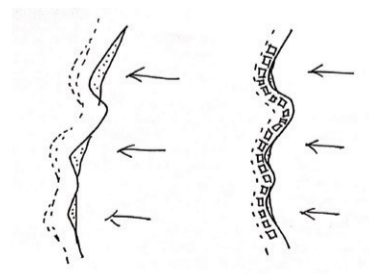
SANDY BEACH LANDWARDS MIGRATION



HARBOUR INUNDATION



ROCKY EDGE INUNDATION



The hard edge of human development prevents sandy buffer systems from migrating landwards, increasing flood risk.

MATERIAL RE-USE

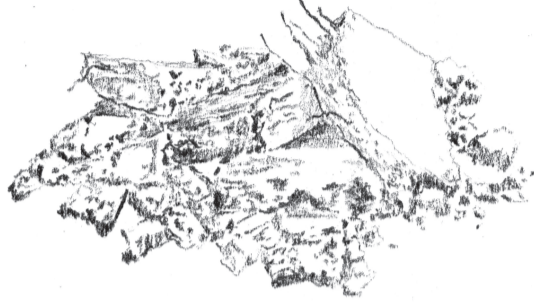
Re-used material for the design comes from three sources. The first is elements from the existing site that have been retained or revealed in the new design layer. The second is demolition rubble from the coastal retreat zones, as structure and fill for the new design. The third is shell waste from the Garden Route seafood and restaurant industry, that is set in aggregate in some of the design details.



BRICK RUBBLE



GLASS

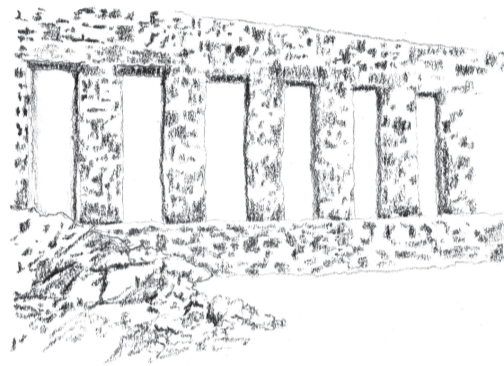


CONCRETE RUBBLE

RE-USE OF MATERIAL FROM RETREAT ZONES

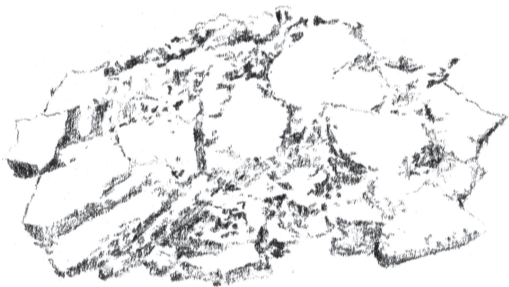


NORFOLK PINES, ROCKY OUTCROPS, HISTORIC SANDSTONE BUILDINGS



BUILDING REMNANTS

RE-USE OF EXISTING SITE MATERIAL



EXCAVATED ASPHALT



SHELL WASTE

AGGREGATE

Aggregate refers to a composite material made from particulate components set in a mass or body. Construction aggregate, largely from stone sources (sand and gravel), has been used in human construction for thousands of years.

The site hold many notions of aggregate.

The geology of the site reveals layers of sediment deposited through time, visible in the dramatic bluff and quarry.

Archaeological middens too can be seen as aggregates with sedimentary layers of human waste making up a consolidated deposit.

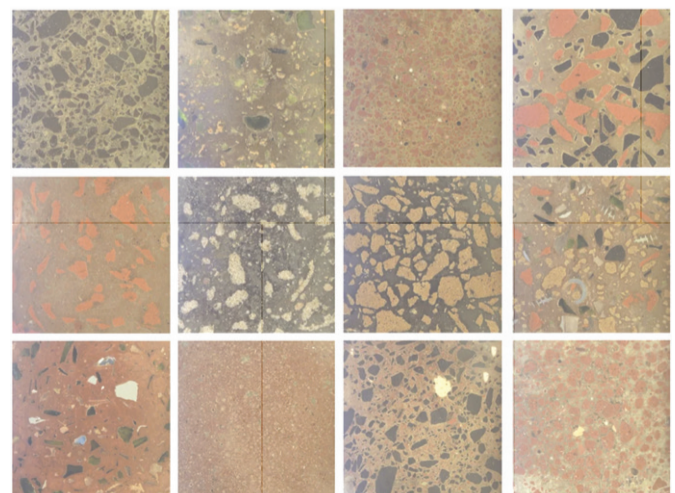
Aggregates by their nature involve the re-constitution of materials in a different form. This mirrors the geological recycling process and has inspired the choice of materials recycled from shell and rubble waste for the built elements of the site - walls, paving, signage and furniture.



MATERIAL PALIMPSEST AT DIE POORT



POLISHED SHELL AGGREGATE



POLISHED RUBBLE AGGREGATE

Narrating the new ecological fiction through material re-use.

“The practice of constructing and reproducing place types materially and imaginally creates fantasies of the world and our place in it. These are powerful fictions, stories that reveal beliefs that engender and hold truths - they frame the activities of humans in the world.” (Franck, 1994, 46)

“The idea of ecology – no matter how sophisticated, how pertinent and ‘right’ it seems for these desperate times – is an imaginal fiction. Nevertheless, the creation of such a fiction, such an important symbol, is a major psychological event. Through this symbol, concern for images of the other is becoming more important than concern for images of self.” (Bishop 1990, 3)

The landscape designer plays an important role in making and narrating “human fantasies of the world and our place in it” (Franck 1994, 46). As we move towards a global ecological paradigm where the ‘us’ and the ‘not us’ are less typologically distinct, landscape designers must find novel ways of representing this new fiction.

The rise of the ecosystem paradigm in the 20th and 21st centuries substitutes an emphasis on the individual organism with that of the milieu in which the individual organism is integrated (Encyclopaedia Britannica, 2019). It favours a systems approach that conceives of organisms, including humans, outside of a conventional hierarchical framework.

In a background of resource over-exploitation and anthropogenic environmental crisis that endangers our very existence on this earth, the view of ourselves as fundamentally integrated with and therefore dependent on our environment is gaining more traction.

Landscape architects are in a position to help redefine the way we think about and act in the world by connecting underlying ecosystematic order to human experience and understanding.

My thesis project aims to make connections between the material culture of humans and broad-scale changes in landscape form through time that result from the interplay of dynamic systems, revealing our interconnection at a fundamental level with the landscape.

The focus on material culture through time will be expressed in the design by comparing its evolution (an archaeological interrogation) with the geological processes of erosion and deposition. Like a geological palimpsest, new layers of urban form are deposited within given cultural-temporal contexts and overlaid sequentially, each time leaving behind traces of previous form.

The project, self-conscious of its place as a new layer in an existing system of strata, aims to reveal some of the dynamism of the layered landscape by making use of material from the previous layer in the new design, rather than erasing or concealing it. Through this act the process of material transformation through time is revealed.

The re-use of material therefore becomes an important component in the design to communicate a certain world view – one of fundamental material interconnectedness.

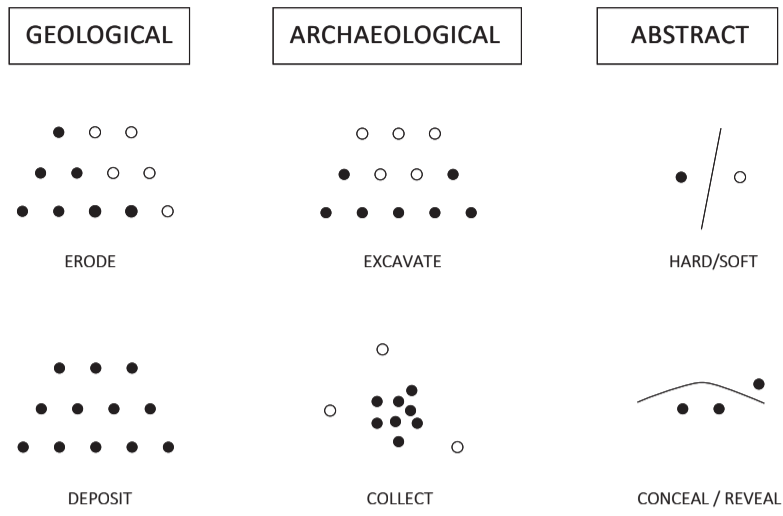
Re-using materials is both a political statement about the state of our resources as something to be carefully managed within a larger, delicate system and a social statement about how meaning is ascribed to material form through time. Therefore the use of materials becomes part of a design language which has power over imagining and presenting ideas about the new ecological fiction.

DEVELOPING A DESIGN LANGUAGE

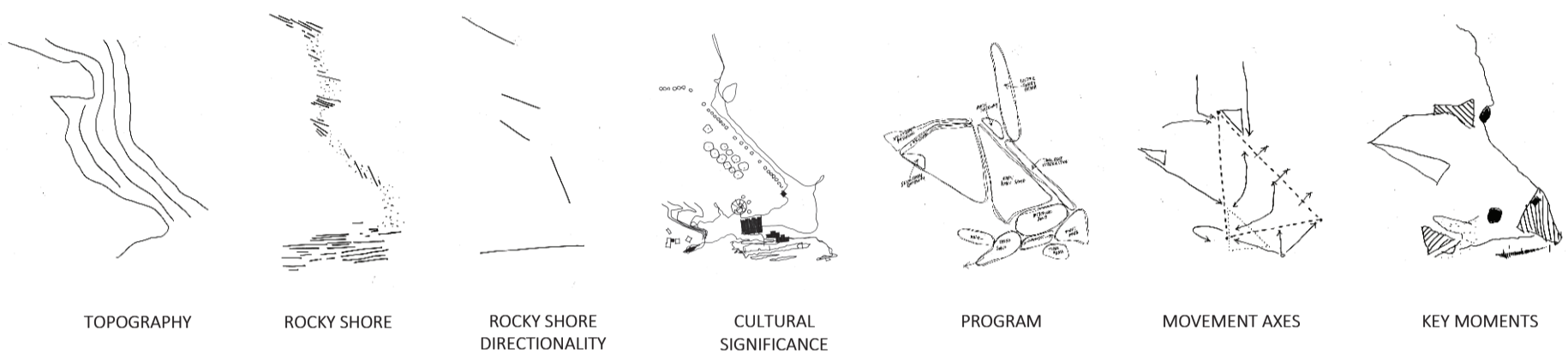
The language of geology archaeology and the principles derived from the abstract model were used in developing the concept.

In experiencing the design, the viewer is invited to perceive two key elements: the site as an excavation site, and the mound as a conscious new deposit on the landscape.

A site analysis was conducted revealing the main informants of the design: the directionality of the site geology and the existing points of cultural significance at the site.

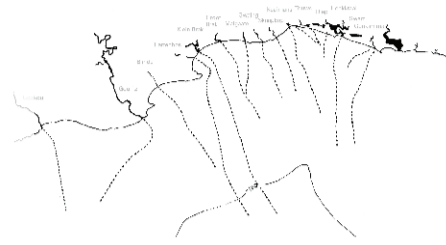
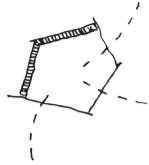


DESIGN INFORMANTS

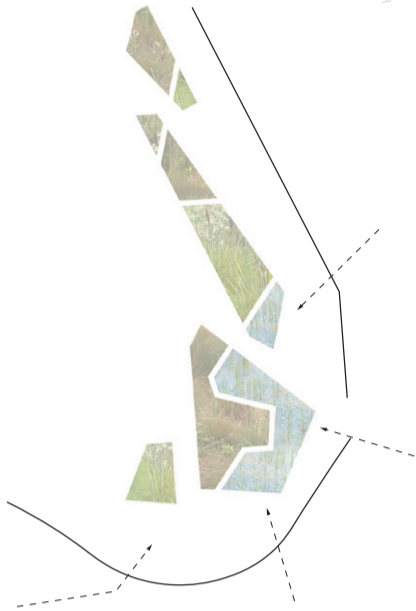


2 PARK

COLLECT



PALEO-DRAINAGE MAP



WATER ON SITE

The new topography alters the drainage on site. Water collected at the base of the mound is channelled into sunken constructed wetlands, cleaning run-off and replenishing the ground water. An overflow pipe leads to the sea.

The wetland vegetation, together with the grassland-inspired planting on the mound, alludes to the glacial vegetation type on the south coast.

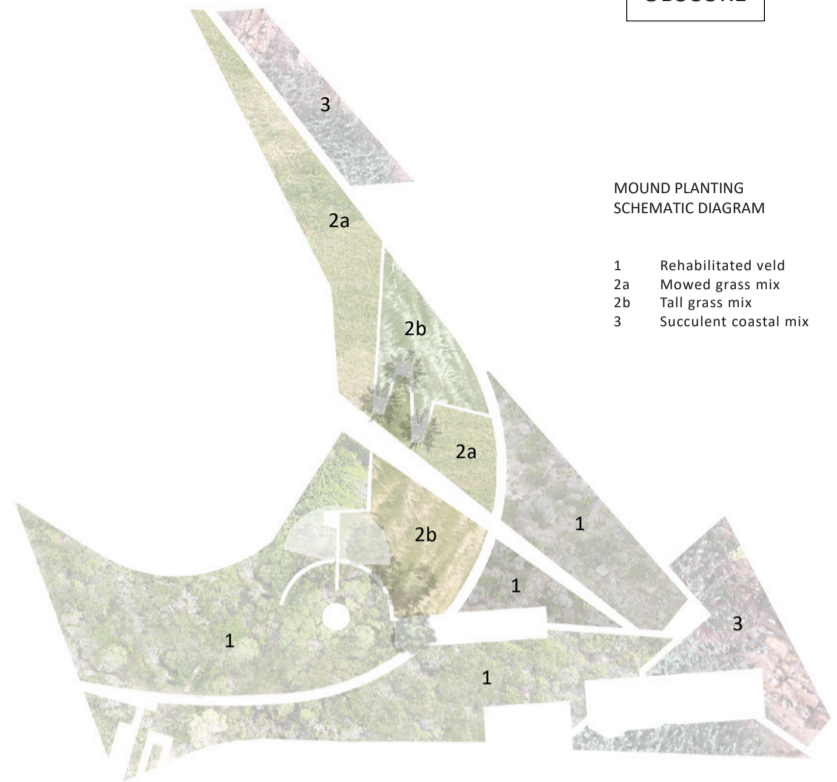
3 MOUND



DEPOSIT

EXCAVATE

OBSCURE



MOUND PLANTING SCHEMATIC DIAGRAM

- 1 Rehabilitated veld
- 2a Mowed grass mix
- 2b Tall grass mix
- 3 Succulent coastal mix

WETLAND



Eragrostis tectorum



Ficinia nodosa



Plecostachys serpyllifolia



Cyperus textilis



Melinis nerviglumis

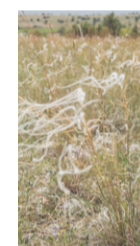
GRASSLAND



Eragrostis curvula



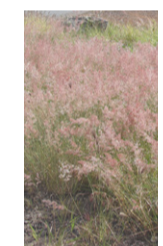
Cynodon dactylon



Stipa dregeana



Melinis nerviglumis



Melinis nerviglumis

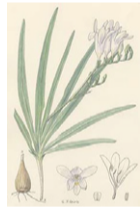
EDIBLE BULBS



Gladiolus guthriei



Watsonia galpinii



Freesia caryophyllacea



Babiana sp.



Chasmanthe aethiopica

VELD



Rhoicissus digitata



Pelargonium betulinum



Aloe arborescens



Metalasia muricata



Aloe ferox

TREES



Araucaria heterophylla (Norfolk Pine)

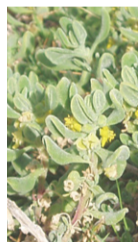


Vachellia xanthophloea (Fever Tree)



Sideroxylon inerme (Milkwood)

STRANDVELD



Tetragonia decumbens



Osteospermum moniliferum



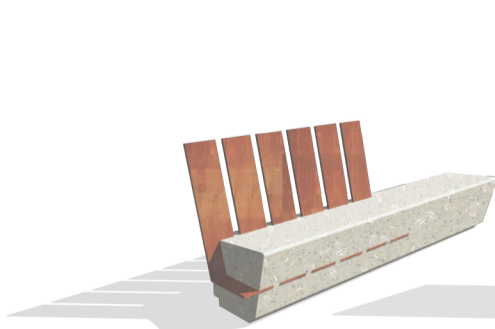
Searsia glauca



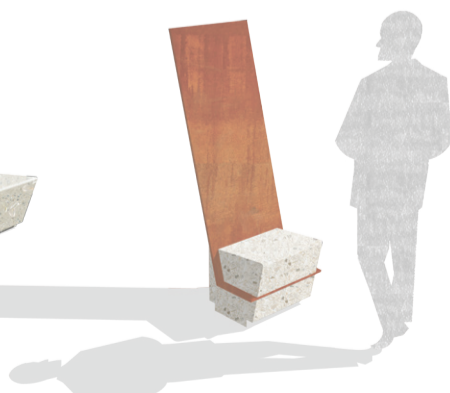
Arctotis stoechadifolia



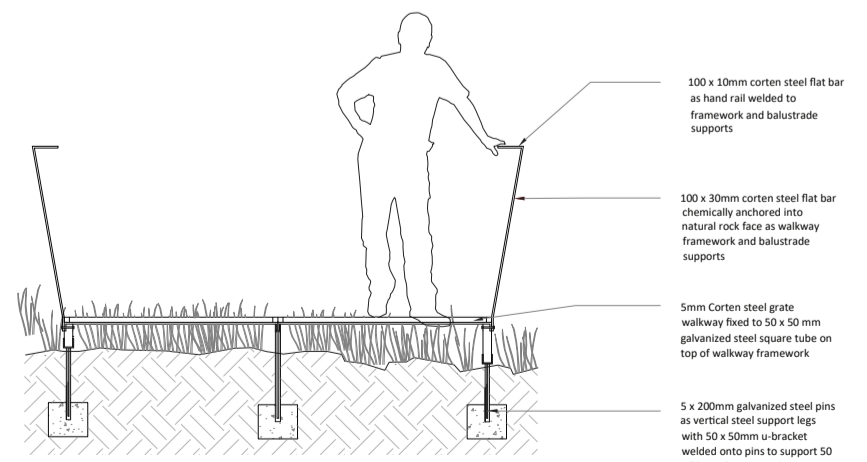
Aloe ferox



SEATING DESIGN



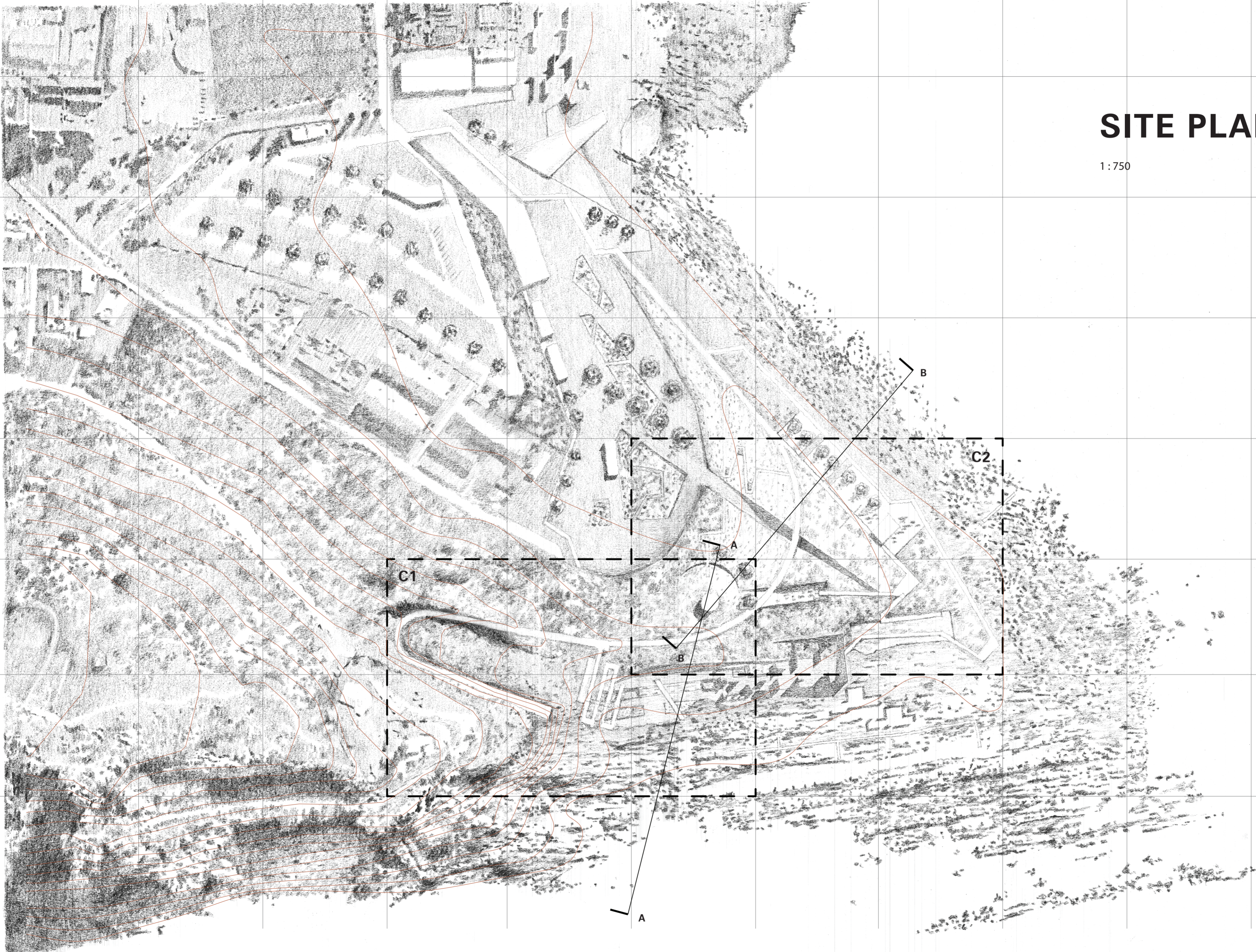
SIGNAGE DESIGN



ELEVATED GRATE WALKWAY DETAIL

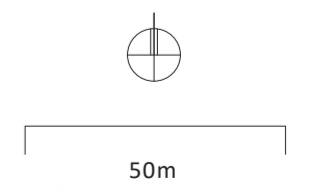
1:20

- 100 x 10mm corten steel flat bar as hand rail welded to framework and balustrade supports
- 100 x 30mm corten steel flat bar chemically anchored into natural rock face as walkway framework and balustrade supports
- 5mm Corten steel grate walkway fixed to 50 x 50 mm galvanized steel square tube on top of walkway framework
- 5 x 200mm galvanized steel pins as vertical steel support legs with 50 x 50mm u-bracket welded onto pins to support 50 x 50mm Corten steel square tube frame legs, set into 200mm thick concrete foundation



SITE PLAN

1:750

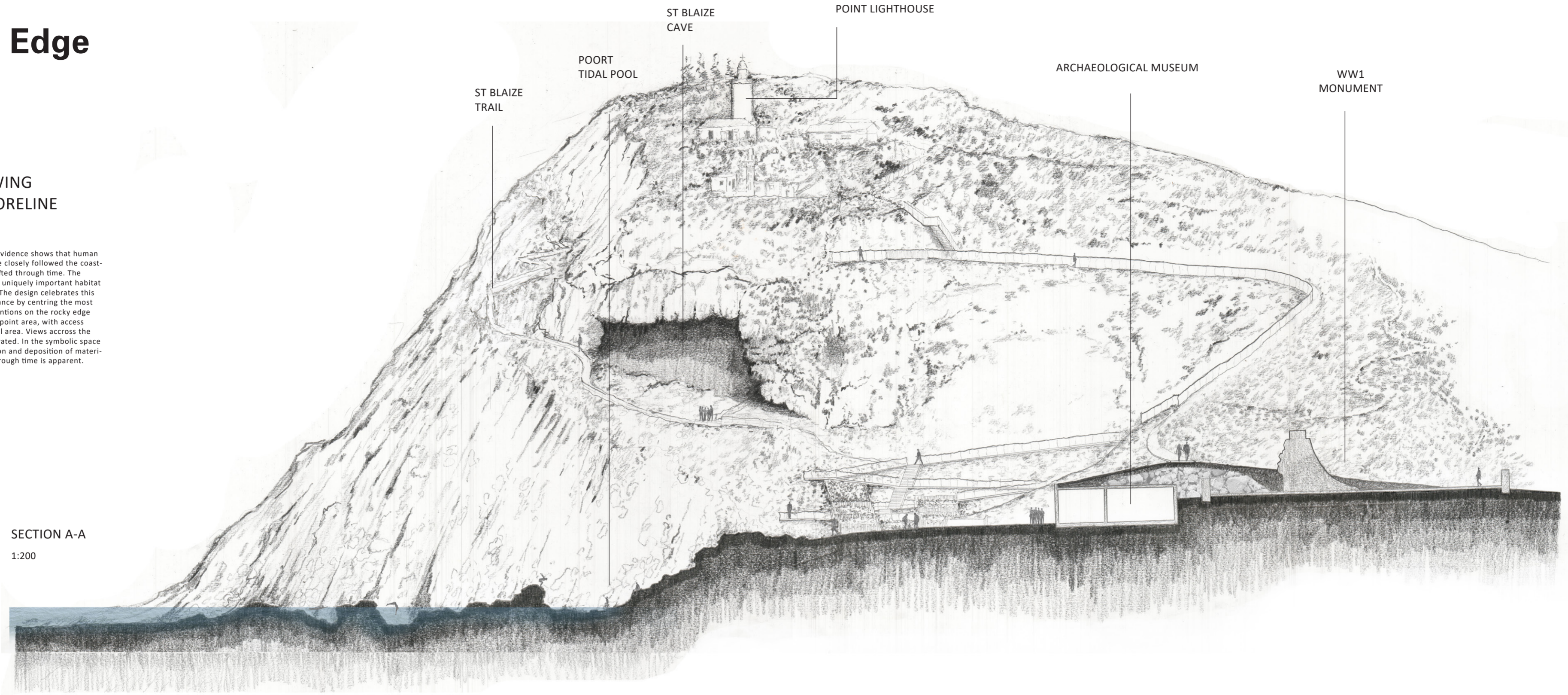


The Edge

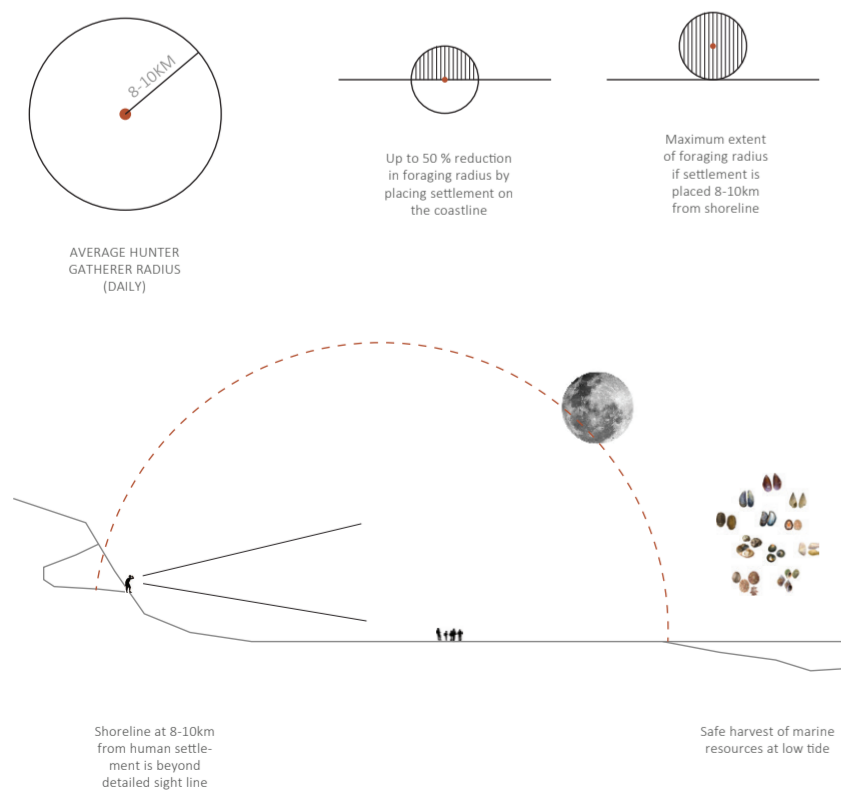
FOLLOWING THE SHORELINE

Archaeological evidence shows that human settlements have closely followed the coastline as it has shifted through time. The coastal zone is a uniquely important habitat for our species. The design celebrates this sense of importance by centring the most dramatic interventions on the rocky edge overlooking the point area, with access down to the tidal area. Views across the ocean are celebrated. In the symbolic space notions of erosion and deposition of material by humans through time is apparent.

SECTION A-A
1:200



LUNAR TIDAL TIME



It is thought that early humans living on the southern coastal plain mastered an understanding of lunar tidal cycles in order to predict at a distance the low tide conditions ideal for the safe harvesting of intertidal species. This not-insignificant cognitive feat, considering the relative complexity of such cycles, enabled early humans to schedule advance trips to the shoreline from their dwellings, which typically were situated well beyond visual proximity of the coast. This awareness of cyclical lunar-tidal time

allowed our ancestors to exploit nutrient-rich resources from the intertidal zone - a 'coastal adaptation' associated with modern humans. The tidal plaza, the hub of the design intervention, celebrates this history between our species and the dynamic coastline. New access down to the Poort tidal pool from the plaza is created by using existing rock surfaces where possible with the addition of in-situ cast concrete aggregate steps that blend sensitively into the geology.



ACCESS TO ROCKY COASTLINE AT PUNTA PITE
Estudio del Paisaje Teresa Moller

SPRING



SUMMER



CARB CRUNCH

AUTUMN



AUTUMN CARBOHYDRATE AVAILABILITY



WINTER



- 1- Harlebeet (*Melolontha bonellaphoi*)
- 2- Eland (*Taurotragus oryx*)
- 3- Oryx
- 4- Black Wildebeest (*Connochaetes gnou*)
- 5- Springbok (*Antelope sp.*)
- 6- Fennel
- 7- Common Rueback (*Rhusica arundinum*)
- 8- Mountain Rheebuck (*Rhusica lateralis*)
- 9- Steenbok (*Raphivivax comparitii*)
- 10- Grybok (*Raphivivax melanotis*)
- 11- Rhizoma sp.
- 12- Gleditsia sp.
- 13- Ficus sp.
- 14- Babosa sp.
- 15- Diogenes whytana
- 16- Carica macrocarpa
- 17- Cera affinis
- 18- Scaris creata
- 19- Rhodociss diglata
- 20- Indonisa
- 21- Gleditsia
- 22- Tetraglenum
- 23- Tetraglenum decumbens
- 24- Penna penna
- 25- Mytilus
- 26- Siliqua
- 27- Choromytilus meridionalis
- 28- Choro
- 29- Scutellaria argemone
- 30- Tetra semelica
- 31- Dorea sp.
- 32- Chryse sp.
- 33- Rhusica
- 34- Barmegia sp.

SEASONAL TIME

The resources available to hunter-gatherers on the southern coastal plain were highly seasonal in nature. The grassland-wetland vegetation of the last glacial phase (the condition for much of human evolution) supported a wide range of terrestrial plant and animal life, including several species of large plains mammals. These unguulate herds migrated seasonally, moving west in winter to take advantage of the winter rainfall-regime of the Western Cape.

Also not available in winter was the array of intertidal marine resources at the coast, due to the strong winter winds and wave conditions that made harvesting unsafe. The chief source of sustenance in winter was plant carbohydrates from geophytes with underground storage organs or above-ground fruits, leaves and berries. These resources, while available to some extent year-round, are less available and also less visible in the hot summer months, leading to a carbohydrate crunch in late summer, where very little is available.

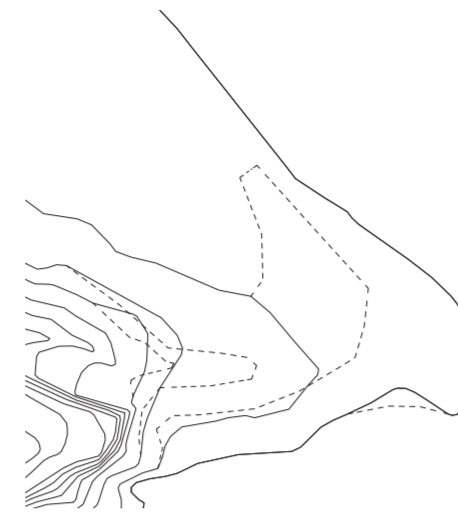
The summer months, when the herds return east and the winds die down, are the time for animal protein, which is the preferred diet of the hunter-gatherer.

The Mound

A MODERN MIDDEN

The design, which envisions a modern 'midden,' a mound of demolition waste deposited over the existing site to form the new public landscape, impels a contemplation of the layers of material that we leave behind over time, and how this defines us to future generations.

The fill material for the midden/mound is from two sources: the zones of settlement that will be forced to retreat from the shoreline due to sea level rise anticipated in the next 50 years, and the existing materials on site that are repurposed in the design of the new landscape.



CONTOUR MANIPULATION



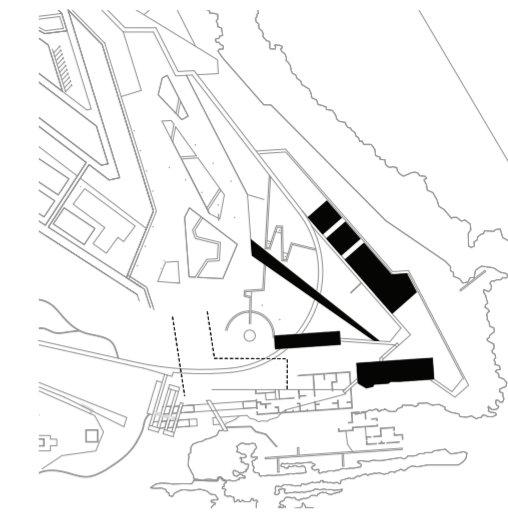
THE MOUND



CULTURAL ARTEFACTS TO BE RETAINED



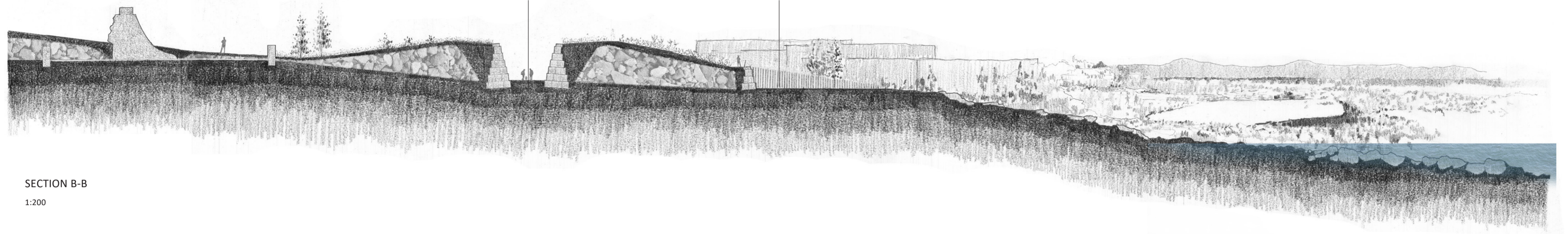
RETAINING STRUCTURES



'EXCAVATIONS'

EXCAVATED PASSAGE

EXCAVATED 'ROOMS'



SECTION B-B

1:200

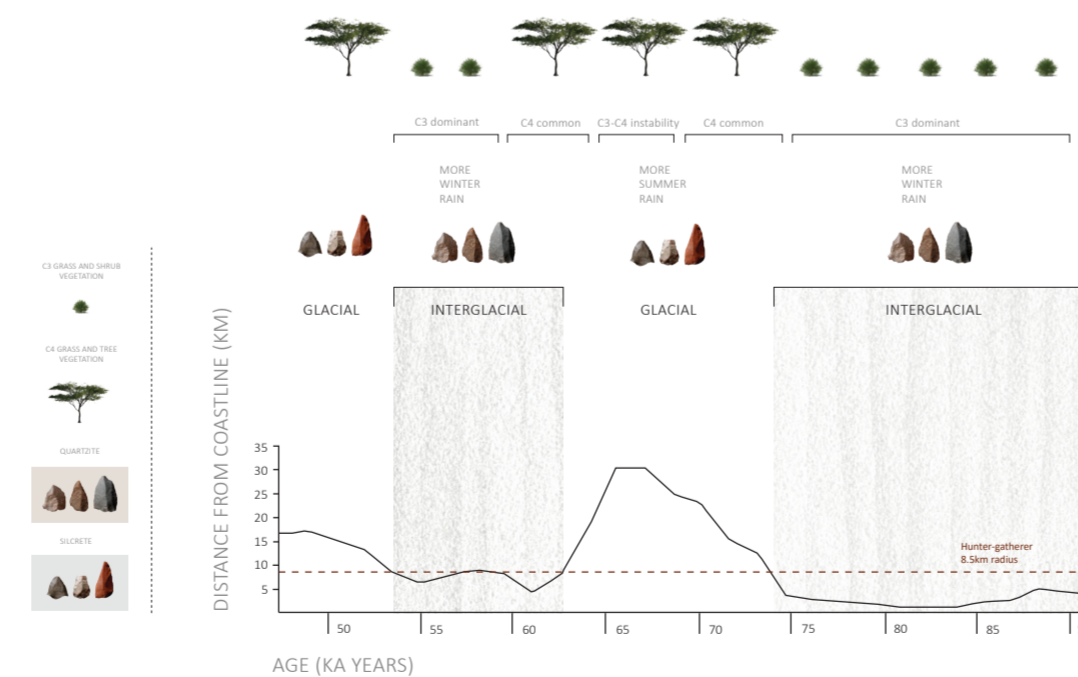


VISUAL EXPLORATION OF MOUND ON THE SITE

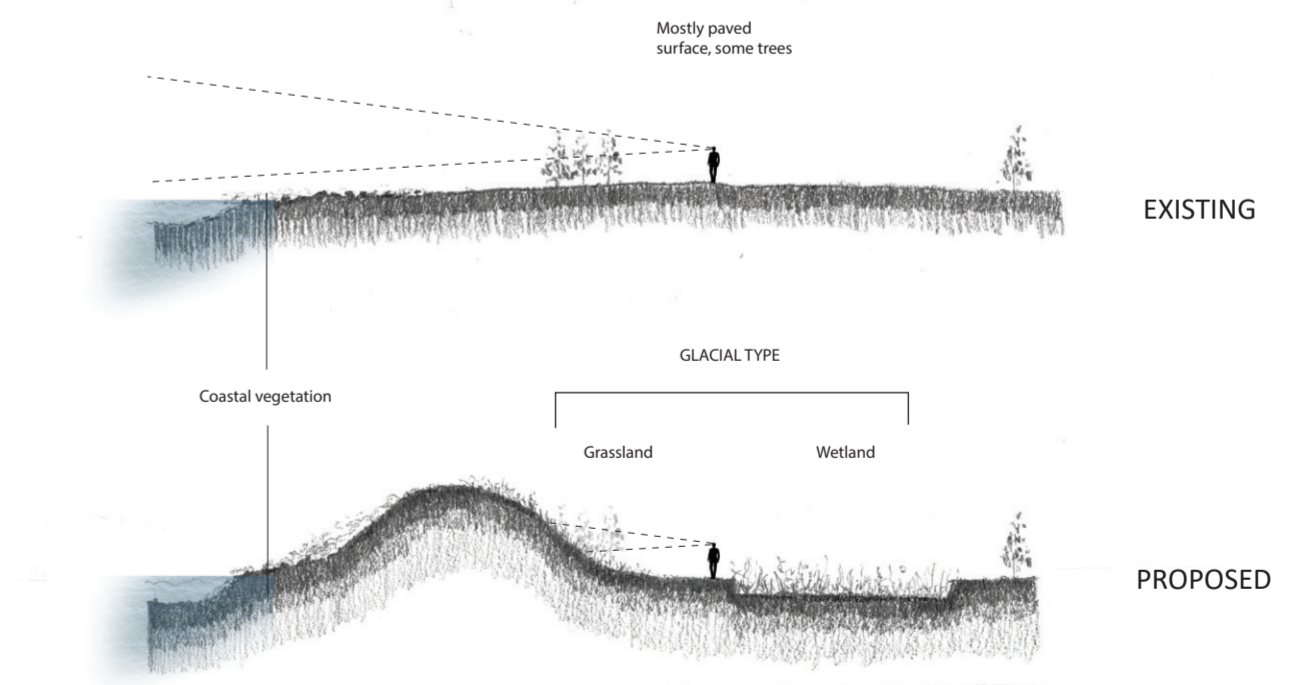
GLACIAL TIME

Brown's (2011) research on the midden deposits at Pinnacle Point caves 5-6 (PP5-6) has shown that patterns of lithic raw material selection varied according to glacial phases. During interglacial phases where the coastline was further inland and thus closer to the cave complexes, the selection of stone for tool-making was largely quartzite, which was readily collected from the shore in the form of

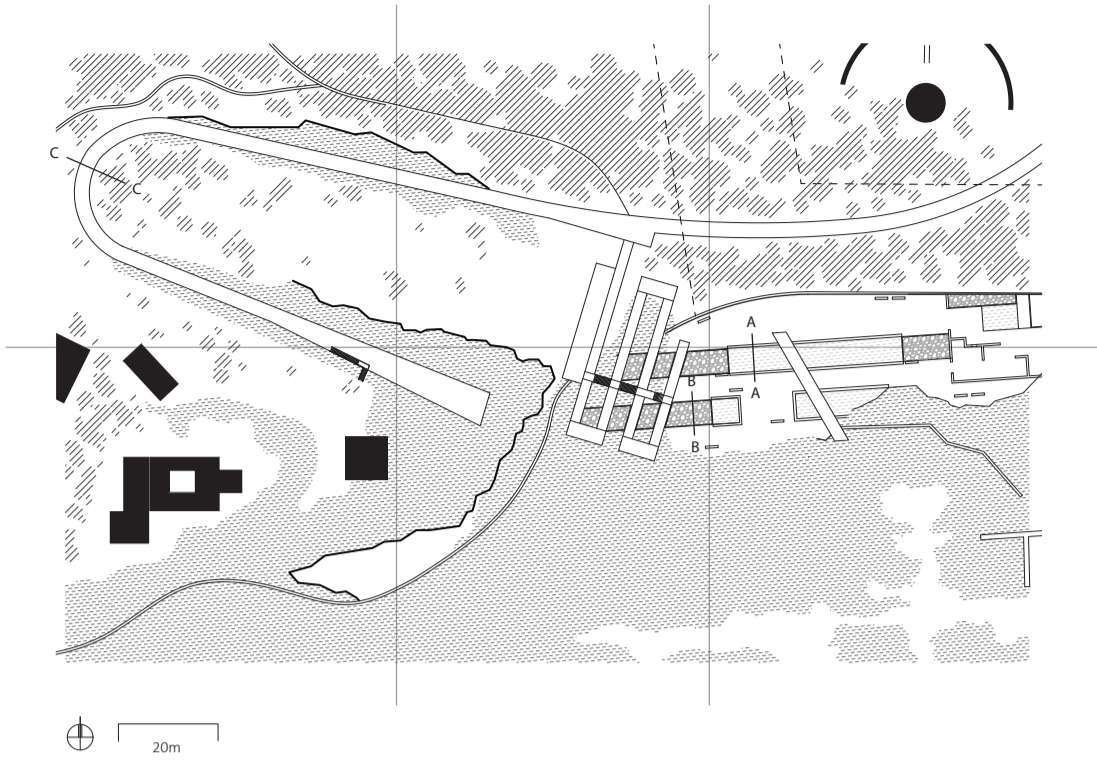
beach pebbles. During glacial phases when the coastline receded far from the cave sites, a silcrete rock, harvested from outcrops to the north are dominant. There is also a correlation between the use of silcrete, which is a heat-treated material, and the availability of wood fuel in the landscape, which is predominant in glacial phases.



Adapted from Bar Matthews (2010) and Franklin (2015).



The conscious imposition of the new mound in the landscape conceals the sea view from the inner park space. The terrestrial view, planted with grassland and wetland vegetation, is an allusion to the glacial landscape. Entering through the museum to the tidal plaza, the sea view is revealed once more.



TIDAL PLAZA

The tidal plaza, into which the archaeology museum opens, forms the hub of the design. From here there are visual sightlines and access to the St Blaize cave (the public gateway to the archaeological past), the lighthouse precinct via the quarry walkway, and the popular Poort tidal pool. Building remnants are consciously retained on site as an experiential feature, reflecting past material layers of the human landscape.

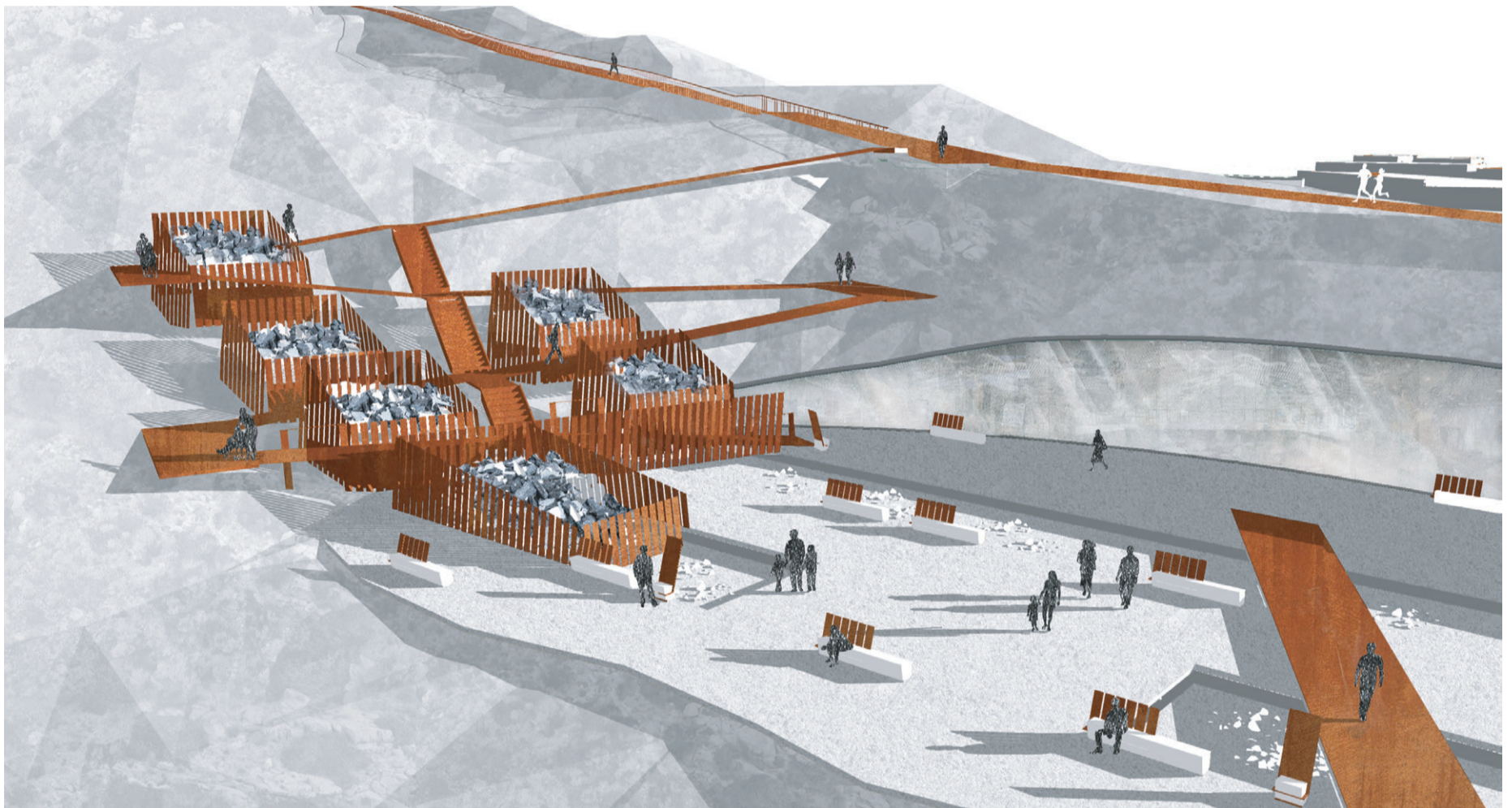
The design concept was to link the plaza, on the tidal edge to the quarry, cave and lighthouse precinct through a ramp structure that provides universal access.

A design language derived from the language of geology (erosion, deposition) and archaeology (trace, excavation) informs the design and its experience.

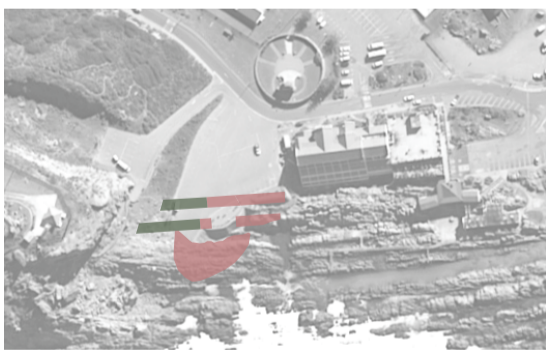
The quarry is seen as a site of 'erosion' (stone removed from the bluff and deposited in the urban form) and the parking area as a site of 'deposition' (asphalt layer poured over sandstone rocks).

Experientially, the notion of these processes being in tandem is reinforced by the visual and physical connection created between the two, and the possibilities of movement in both directions.

The asphalt on the plaza is excavated in strips that are parallel to the direction of the natural geology and the resulting rubble is retained in piles with corten steel slats that are fixed into the ground. These piles reinforce the notion of the mound in the design and provide a somatic experience as one moves through the ramp up to the quarry.

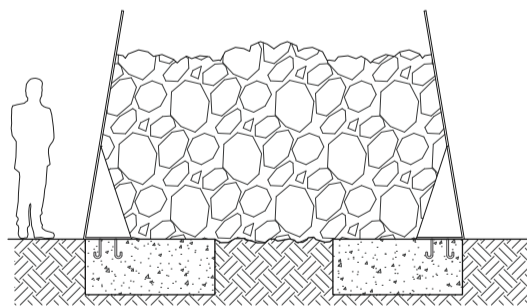


VIEW OF TIDAL PLAZA AND RAMP STRUCTURE



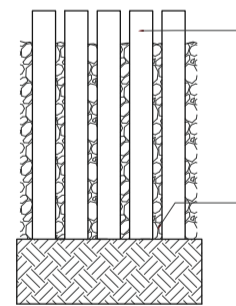
'CUT AND FILL' DIAGRAM

CUT FILL



SECTION BB CORTEN STEEL RETAINING WALL MEMBERS

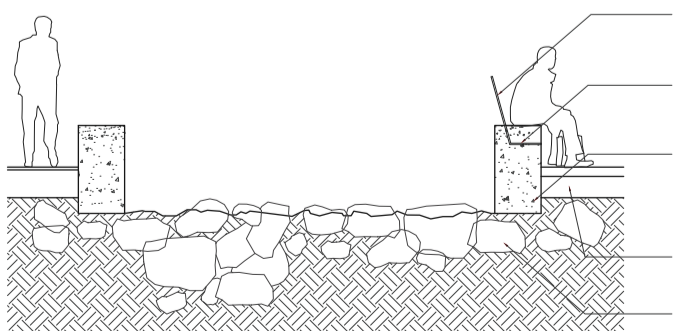
1:40



ELEVATION

100 x 30mm corten steel flat bar slats at a 80° angle and varying heights, folded at the base into a 500mm wide foot and fixed to a 600mm thick concrete foundation which is made from grinded rubble material mixed with new cement as per engineers specifications. 100mm Spacing between slats

±200-500mm large asphalt and rubble blocks / components held behind steel slats



SECTION AA EXCAVATED ASPHALT STRIP

1:40

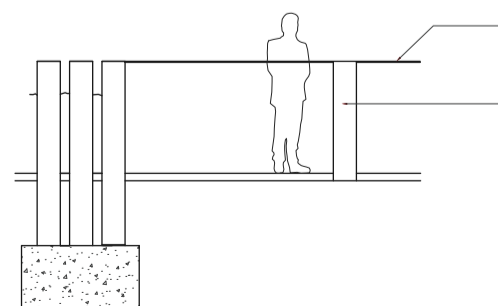
300 x 10 x 550mm Corten steel flat bar slats as backrest to seating with 100mm spacing inbetween steel slats

300 x 10mm and 10mm deep Corten steel flat bar strips inside concrete seating element as visual illusion

500 x 950mm rubble aggregate and concrete seating element on 150mm thick concrete foundation, with exposed aggregate sides and polished finish on the top of the block

100mm thick existing asphalt layer on compacted soil as per engineers specifications

Existing Table Mountain Sandstone from excavated asphalt surface

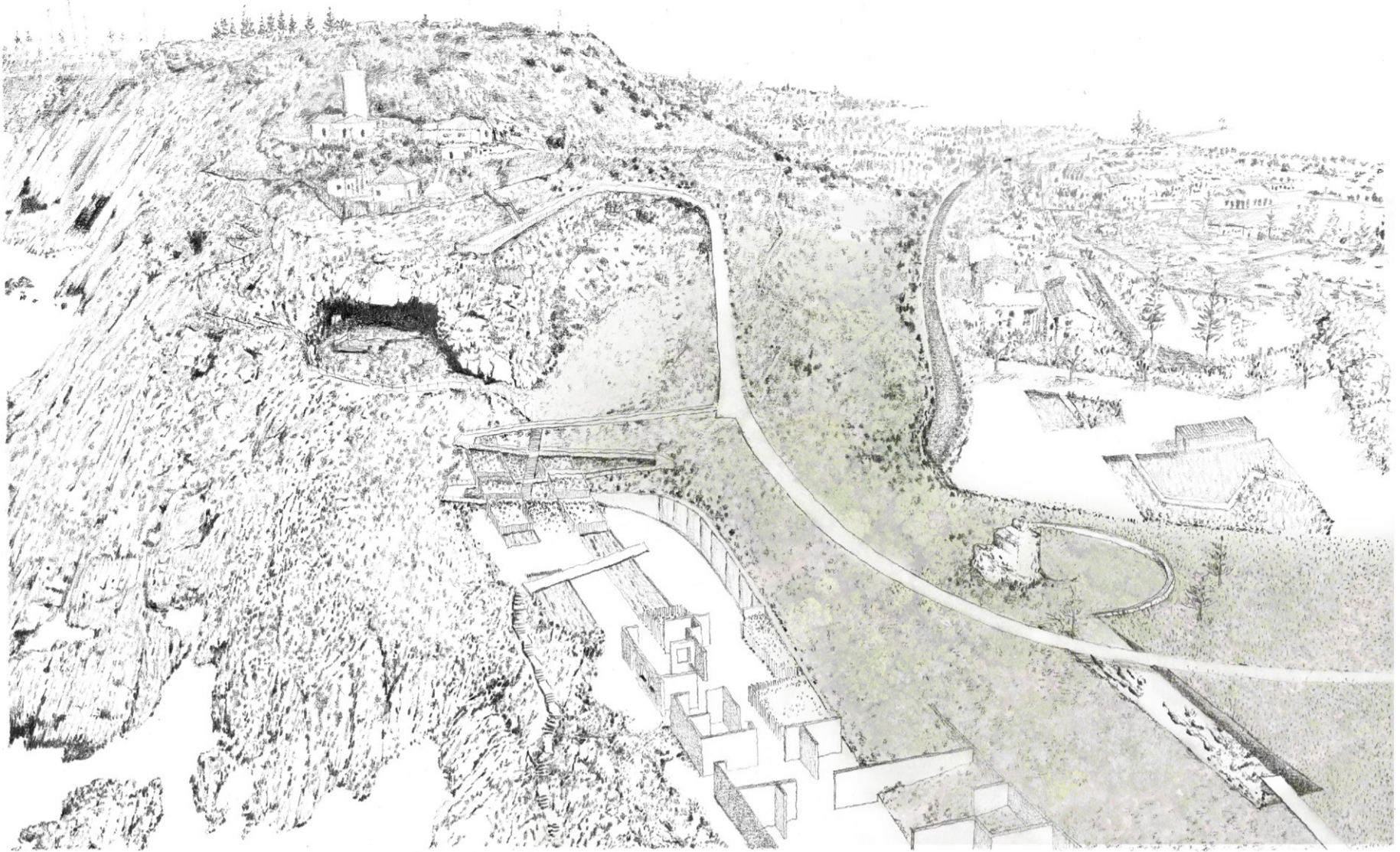


BALUSTRADE TRANSITION DETAIL

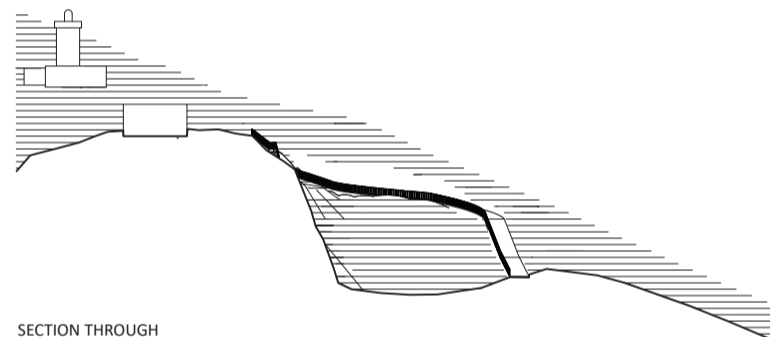
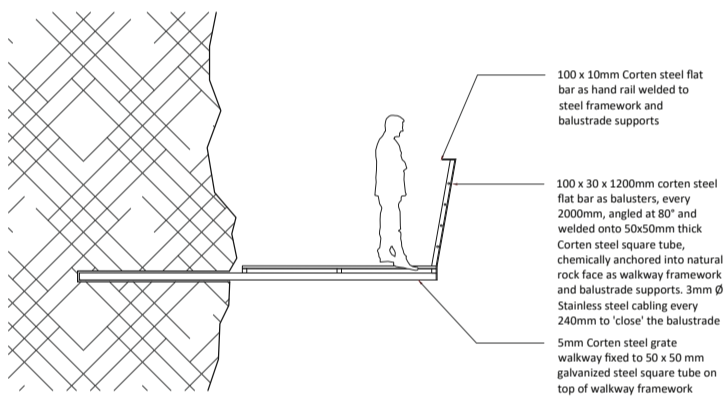
1:40

100 x 10mm Corten steel flat bar as hand rail welded to steel framework and balustrade supports

100 x 30 x 1200mm corten steel flat bar as balusters, every 2000mm, angled at 80° and welded onto 50x50mm thick Corten steel square tube, chemically anchored into natural rock face as walkway framework and balustrade supports. 3mm Ø Stainless steel cabling every 240mm to 'close' the balustrade



AERIAL VIEW SHOWING PROPOSED
FILL AREA IN GREEN.



SECTION THROUGH
POINT QUARRY

SECTION CC ELEVATED WALKWAY
ANCHORED TO ROCK FACE

1:40



VIEW FROM QUARRY LOOKOUT
POINT OVER TIDAL PLAZA

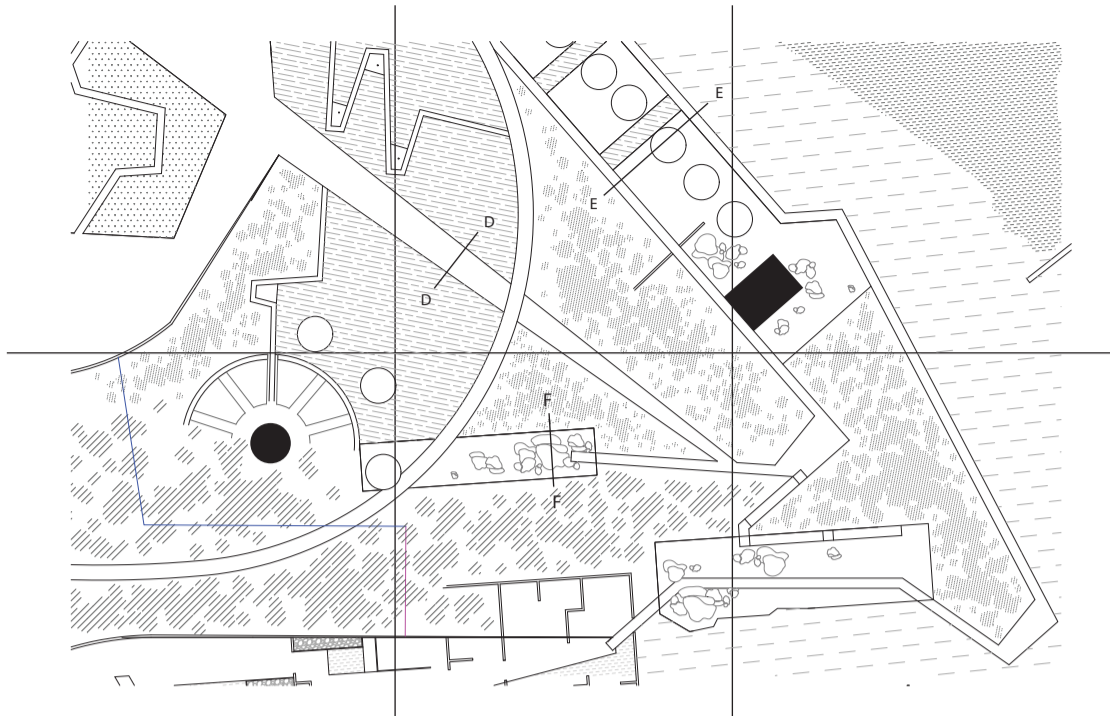
'EXCAVATIONS'

In keeping with the archaeological metaphor, the designed landscape reads as an excavation site.

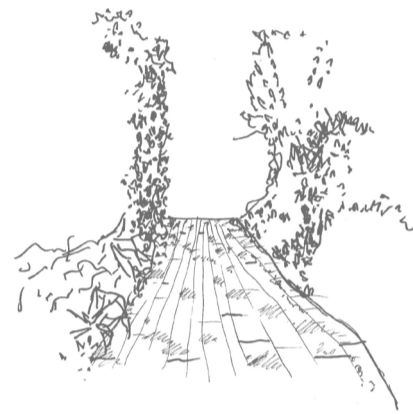
Points of cultural significance on the existing landscape are retained through an 'inverse excavation'. These become spaces of individual character that reveal the layered nature of the human landscape and frame certain historical elements in the new design.

The 'excavations' are constructed by building retaining walls - either gabions filled with rubble or concrete with rubble aggregate. The mound is then filled around them.

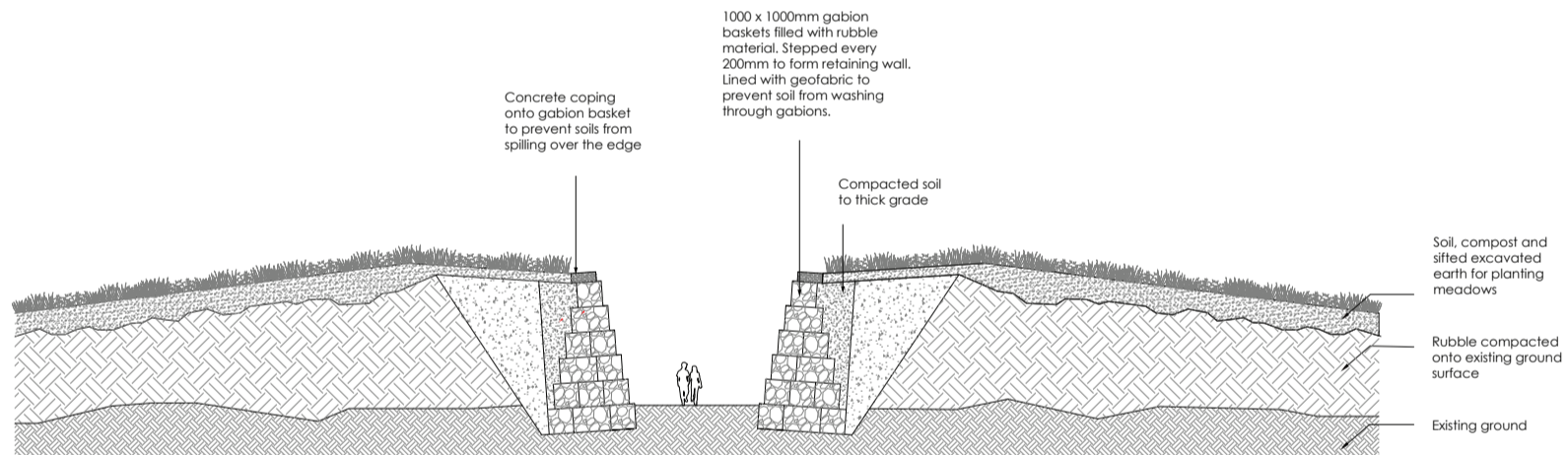
The 'excavations' appear as cuts through the mound, made from the same rubble material. This exposes the materiality of the mound to the perceiver.



EXCAVATED FORM

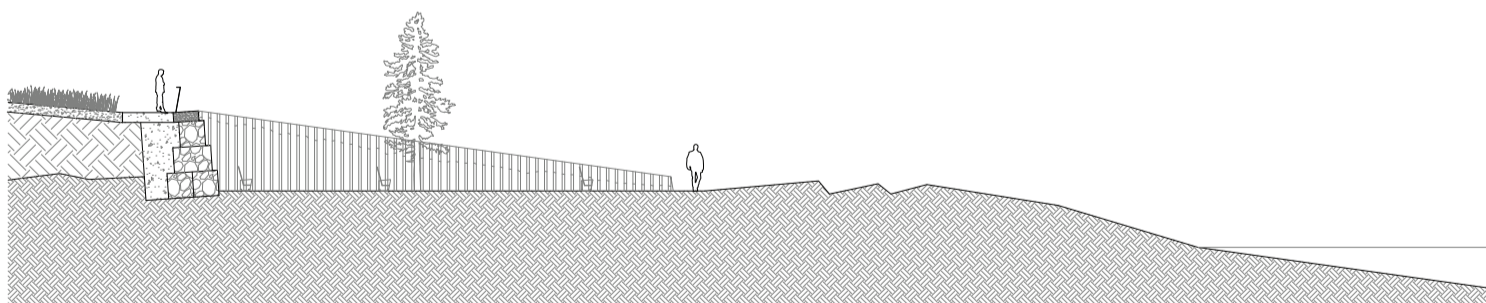


ENCLOSED SPACE



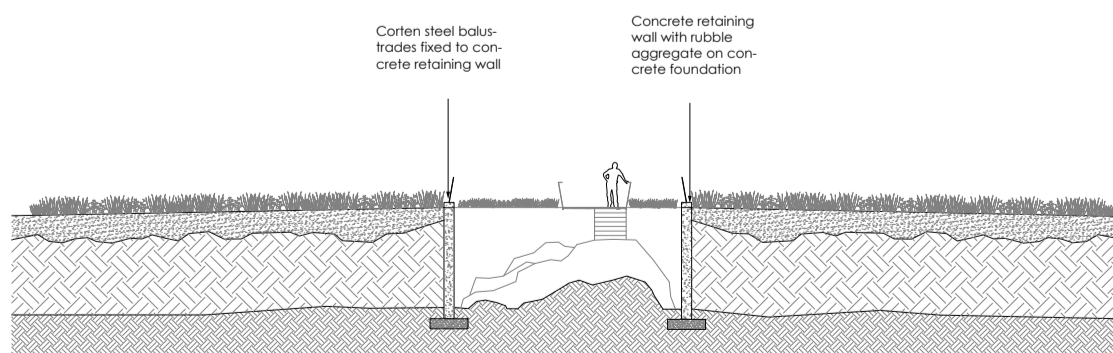
SECTION D-D THROUGH 'EXCAVATED' PASSAGE

1:150



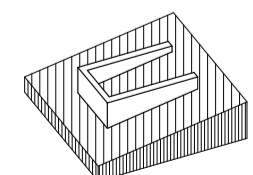
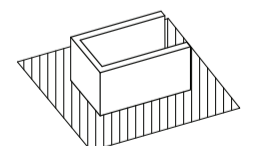
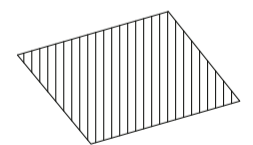
SECTION E-E THROUGH 'EXCAVATED' ROOM

1:150

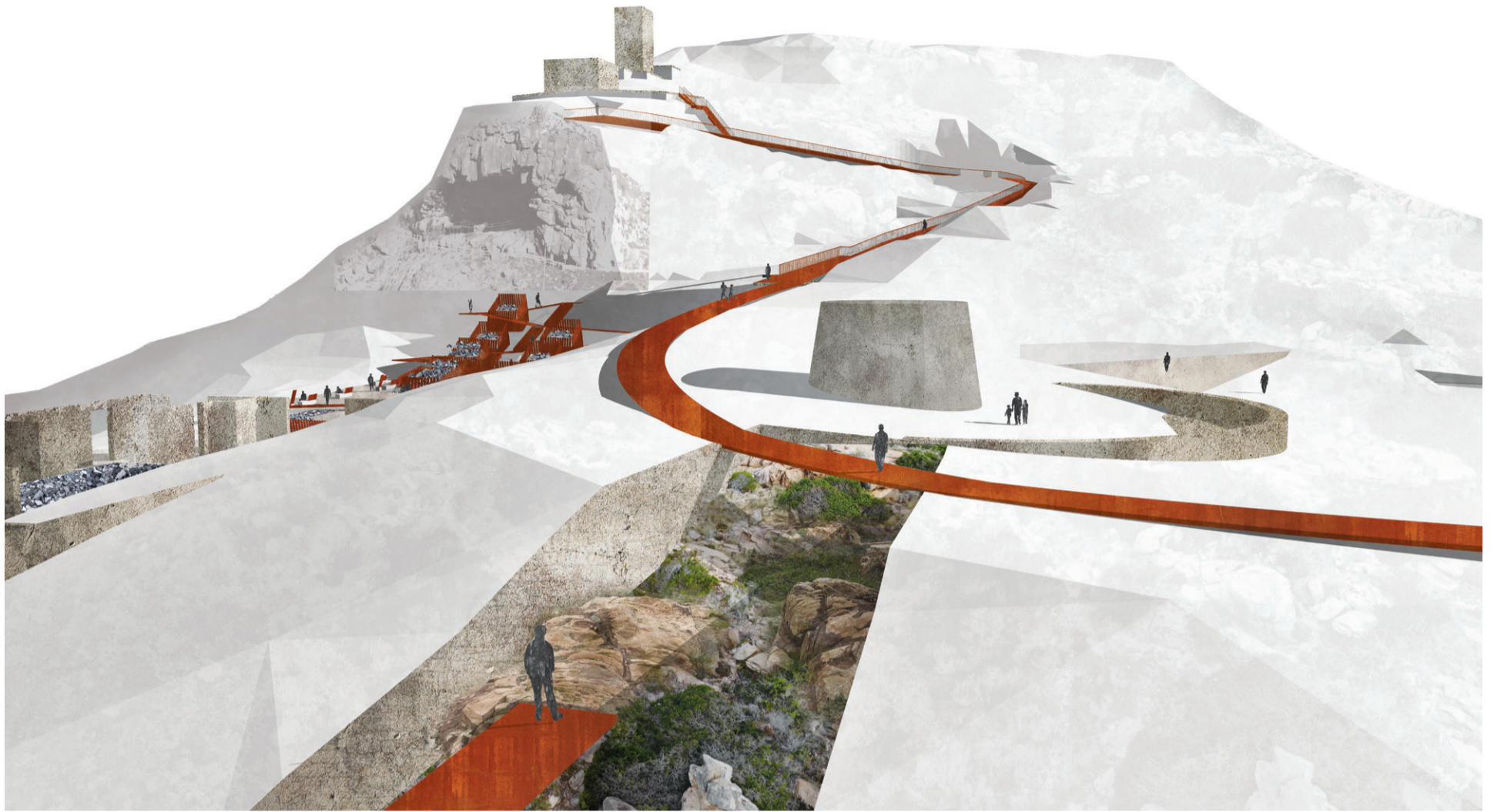


SECTION F-F THROUGH EXCAVATED SANDSTONE OUTCROP

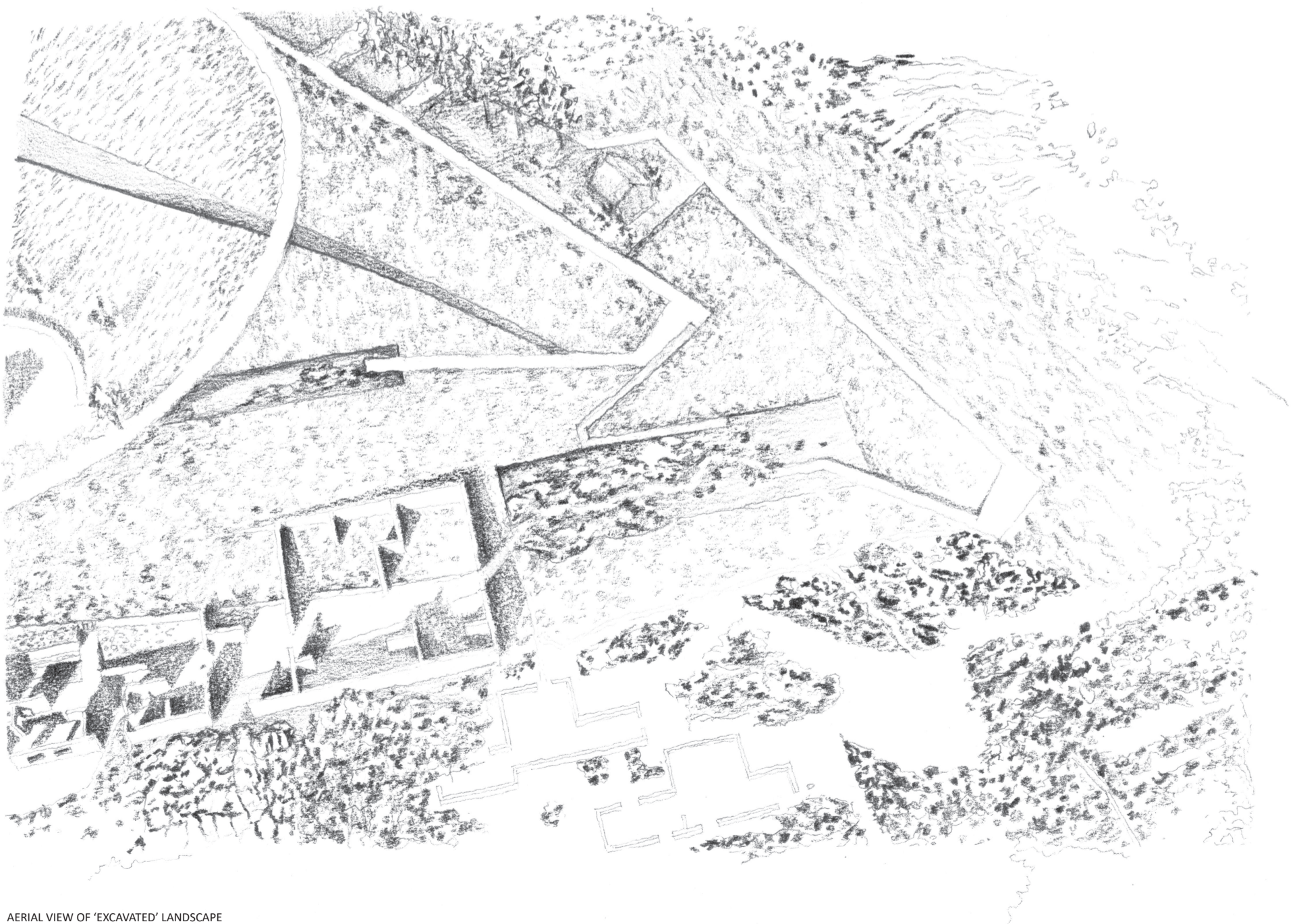
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'INVERSE EXCAVATION' CONSTRUCTION LOGIC



VIEW OF 'EXCAVATED' SANDSTONE OUTCROP



AERIAL VIEW OF 'EXCAVATED' LANDSCAPE

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APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant	Amber Myers	
Department	Architecture, Planning and Geomatics	
Preferred email address of applicant:	ambmyers@gmail.com	
If Student	Your Degree: e.g., MSc, PhD, etc.	MLA (Masters in Landscape Architecture)
	Credit Value of Research: e.g., 60/120/180/360 etc.	120
	Name of Supervisor (if supervised):	Clinton Hinds
If this is a research contract, indicate the source of funding/sponsorship	N/A	
Project Title	Landscape of Discovery: Designing a Resilient Buffer Zone for Mossel Bay that Reflects on the Past, Present and Future of Human Interaction with the Coastal Environment	

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Principal Researcher/ Student/External applicant	Amber Myers	Signed by candidate	05 Apr 2019

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